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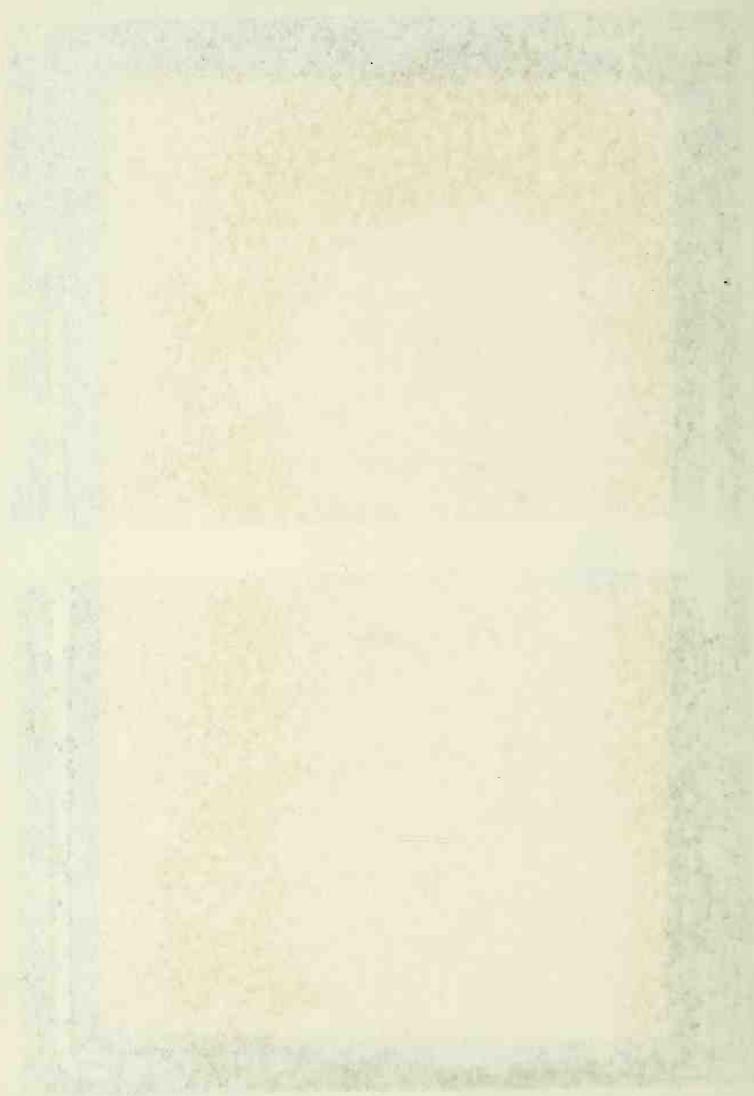
Belanger, E. J.

Chemical Pub. Co. 1958

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Modern manufacturing formulary
1025834,

4-28-58
9/30/58



MODERN MANUFACTURING FORMULARY

*compiled for chemists, manufacturers,
pharmacists, technicians, and students*

by

EMIL J. BELANGER

Registered Pharmacist



1958

CHEMICAL PUBLISHING CO., INC.

212 Fifth Avenue, New York, N.Y.

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CHEMICAL PUBLISHING Co., Inc.

NEW YORK

N. Y.

Printed in the United States of America

TO MY WIFE AND COLLABORATOR

MARION F. BELANGER, R.N.

1025834

PREFACE

The approbation which greeted the appearance of the author's first book *Drug and Specialty Formulas* and its continued sale during the past several years has suggested the publication of this new book.

The experience gained during more than 40 years as a registered pharmacist active in retail drug work, combined with that obtained during many years devoted to the specialized study of the composition and preparation of specialty products, as well as by personal activity in manufacturing, has been the foundation for this book.

It should serve as a stepping stone to entering some branch of the chemical process industries and will secure additional financial gain to those who are already active in the chemical industry. It includes hundreds of modern formulas in the most popular chemical manufacturing fields.



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TABLE OF CONTENTS

	<i>Page</i>
PREFACE	5
ABBREVIATIONS	9
INTRODUCTION	11
Chapter 1—SELECTED FOOD PRODUCTS	13
Chapter 2—FLAVORING EXTRACTS	27
Chapter 3—PRACTICAL HOUSEHOLD FORMULAS	47
Chapter 4—COSMETIC SPECIALTIES AND TOILET PREPARATIONS ..	101
Chapter 5—MEDICINAL PREPARATIONS	163
Chapter 6—VETERINARY REMEDIES	259
Chapter 7—CARBONATED BEVERAGES, GINGER ALES, BEVERAGE EX- TRACTS, FRUIT OILS, ETC.	276
Chapter 8—MISCELLANEOUS FORMULAS	294

	<i>Page</i>
Appendix	304
RULES FOR FIGURING DOSES	304
CONSUMER PROTECTION—FOOD, DRUG AND COSMETIC ADMINISTRATION	
Foods	305
Colored Oleomargarine	306
Drugs	307
Cosmetics	308
LABELING OF DRUGS UNDER THE PROVISIONS OF THE FEDERAL FOOD, DRUG AND COSMETIC ACT	310
STERILITY OF OPHTHALMIC SOLUTIONS	313
MEMORANDUM ON WARNING STATEMENTS	314
FAIR PRACTICES AND FOOD AND DRUG ACT—SUMMARY	319
CLASSIFIED BUYING DIRECTORY OF SOURCES OF SUPPLY	321
INDEX	379

ABBREVIATIONS

Artif.	Artificial
Avoir.	Avoirdupois
Bé.	Baumé (degrees)
C.	Centigrade (degrees)
dr.	Dram
F.	Fahrenheit (degrees)
Fl.	Fluid
Fl. Ext.	Fluid Extract
g.	Gram
gr.	Grain
gal.	Gallon
lb.	Pound Avoirdupois
mfg.	Manufacturing
min.	Minims
N. F.	National Formulary
oz.	Ounce
pdr.	Powder
pt.	Pint
U.S.P.	United States Pharmacopoeia
vol.	Volume
wt.	Weight

INTRODUCTION

In the preparation of this book, special effort was made to select formulas which require no extensive scientific knowledge or training for their manufacture. The method of preparation has been made as simple as is consistent with the nature of the product.

Products made from these formulas can be successfully compared with products on the market. The formulas have been grouped into convenient chapters and only the best available representative formulas for each type of finished product have been included.

The titles used in the classification of the formulas are descriptive and suggestive rather than precisely as the FOOD, DRUG AND COSMETIC ACT may require in packaging products for market and should, therefore, be considered as such.

Proportions in some formulas are designated by *parts*. Any one unit of weight such as, grams, drams, ounces, pounds, etc., may be substituted for the *parts*. Pounds, ounces, etc., may also be substituted for *volumes* % in the formulas.

For best results, where no directions for mixing follow a formula, mix the ingredients in the order given.

Classified Directory of Sources of Supply in the back of the book will ease the task of obtaining the ingredients needed for formulation.

The comments on the therapeutic properties which will be found following each formula for medicinal preparations as well as the notes on the uses of cosmetics and specialties are intended as suggestive guides in the preparation of labels rather than exact label texts.

Since the FOOD AND DRUG ADMINISTRATION places full responsibility on manufacturers and distributors for distributing their products in harmony with the provisions of the FEDERAL FOOD, DRUG AND COSMETIC ACT, manufacturers should familiarize themselves with its provisions and re-

quirements. Special caution should be taken to make certain that all latest label warnings are also complied with, regardless of what the previous label suggestions may have been.

It is the sincere hope of the author that this book will prove to be a worthwhile addition to the library of those interested in specialty products and that it will be of assistance in preparing new products for commercial exploitation.

SELECTED FOOD PRODUCTS

Food is an essential element in life. The commercial preparation of food products for the consuming public has developed into a gigantic industry, reaching into the far corners of the earth for its sources of supply of raw materials, blending them with scientific precision to achieve the products found in the market today. This simplifies greatly the task of housekeeping and lightens the work of those engaged in food preparation or nutrition.

The composition and preparation of representative products are the topic of this chapter.

WHITE CAKE MIX*

Cake Flour	100 lb.	Vanillin	
Pulverized Salt	2 lb.	(Fine Crystals)	$\frac{3}{4}$ oz.
Baking Powder†	6 lb.	Powdered Mace	$\frac{1}{2}$ oz.
Powdered Sugar	135 lb.	Micronized Vanilla Beans	1 oz.
Powdered Skim Milk‡	12 lb.	Emulsified Shortening§	45 lb.
Powdered Egg Whites	7 lb.		

Mix all except the shortening thoroughly in a suitable container, using wooden, aluminum, or stainless-steel paddles; then add the shortening and continue stirring at low speed until completely mixed.

Package in the usual one-pound carton, with directions for adding $1\frac{1}{3}$ to $1\frac{2}{3}$ cups of water per pound of the above dry mix. (The optimum amount of water should be ascertained by trials.) Bake at 325°F. for 30 to 40 minutes (or longer if necessary).

* Consult the DIRECTORY OF SOURCES OF SUPPLY at the end of the book for addresses of the manufacturers or sellers of the ingredients in the various formulas.

† Baking powder may be prepared by thoroughly mixing:

Sodium Bicarbonate	26.7 lb.
Potassium Bitartrate	59.9 lb.
Cornstarch	13.4 lb.

‡ If a mix for milk is desired, omit the powdered skim milk and revise the directions to "Add $1\frac{1}{3}$ cups homogenized milk to this package and stir until smooth."

§ EMULSIFIED SHORTENING

Prepare a dispersion of glyceryl monostearate (S-928) by stirring 30 grams of the melted substance into 70 grams of boiling water (or, naturally, 30 pounds of glyceryl monostearate into 70 pounds of boiling water), and stir until cool.

FUDGE CAKE MIX

Cake Flour	44 lb.	Powdered-Whole Eggs	4 lb.
Baking Powder	$\frac{1}{2}$ lb.	Vanillin	
Sodium Bicarbonate	$\frac{3}{4}$ lb.	(Fine Crystals)	$\frac{1}{2}$ oz.
Pulverized Salt	$\frac{3}{4}$ lb.	Micronized Vanilla	
Powdered Sugar	75 lb.	Beans	$\frac{3}{4}$ oz.
Micronized Cocoa	25 lb.		

Mix thoroughly in a pony or "change-can" mixer; then add 25 pounds of emulsified shortening.

Package in one-pound cartons, with directions to add $1\frac{1}{3}$ cups of homogenized milk to one package. Bake at 350°F. for 30 to 35 minutes.

YELLOW CAKE MIX

Cake Flour	100 lb.	Pulverized Salt	$2\frac{1}{2}$ lb.
Powdered Skim Milk	17 lb.	Vanillin	
Powdered Sugar	140 lb.	(Fine Crystals)	1 oz.
Powdered Egg Yolks	20 lb.	Micronized Vanilla	
Baking Powder	5 lb.	Beans	2 oz.

Mix and add 45 pounds of emulsified shortening intimately mixed with $\frac{1}{8}$ ounce of oil of lemon.

Add 1 cup of water per pound of mix. Bake at 350°F. for 30 to 35 minutes.

SPICE CAKE MIX

Cake Flour	100 lb.	Brown Sugar	22 lb.
Baking Powder	$6\frac{1}{4}$ lb.	Powdered Skim Milk	9 lb.
Pulverized Salt	2 lb.	Vanillin	
Powdered Cinnamon	$1\frac{1}{2}$ lb.	(Fine Crystals)	$\frac{3}{4}$ oz.
Powdered Alspice	$1\frac{1}{2}$ lb.	Micronized Vanilla	
Powdered Cloves	$\frac{3}{4}$ lb.	Beans	1 oz.
Powdered Nutmeg	$\frac{3}{4}$ lb.	Powdered Egg Yolks	6 lb.
Powdered Sugar	100 lb.		

Mix and add 40 pounds of emulsified shortening. Mix in pony mixer to complete homogeneity.

Directions: Mix with 1 cup of water per pound of mix. Bake at 350°F. for 30 to 35 minutes.

ANGEL-CAKE MIX

Cake Flour	100 lb.	Vanillin	
Powdered Sugar	250 lb.	(Fine Crystals)	1½ oz.
Powdered Egg Whites	25 lb.	Micronized Vanilla	
Pulverized Salt	1 lb.	Beans	2 oz.
Cream of Tartar		Almond Extract	1 qt.
(Potassium Bitartrate)	4 lb.		

Place the sugar, salt, and cream of tartar into the mixer; while stirring slowly, add the almond extract gradually; when completely absorbed, add the rest of the ingredients in order.

Directions on one-pound package: To this package, add 1 cup of water and mix until smooth. Bake at 325°F. for 50 minutes.

WHITE FROSTING
(seven-minute type)

Powdered Sugar	80 lb.	Potassium Bitartrate	2 oz.
Dextrose	10 lb.	Vanillin	
Powdered Egg Whites	¾ lb.	(Fine Crystals) *	½ oz.
Pulverized Salt	1 oz.		

Mix thoroughly in a pony mixer and package in six- or seven-ounce cartons.

Directions on carton: Add 2 tablespoons of hot water to contents and stir with rotary beater in a double boiler. When stiff enough, remove from the heat and beat until just thick enough to spread.

* Other flavors, for example, oil of peppermint, almond or pistachio, or a blend of these two may be substituted for the vanillin.

QUICK COCONUT-FUDGE FROSTING

Powdered Sugar	80 lb.	Vanillin	
Dextrose	10 lb.	(Fine Crystals)	½ oz.
Pulverized Salt	1 oz.	Sodium Alginate	4 oz.

Mix thoroughly in a pony mixer; package in six- or seven-ounce cartons.

Directions on carton: Stir contents of package into 2 tablespoons of water in a double boiler and heat at 160° to 170°F.; after blending thoroughly with a rotary beater, remove from the heat and continue stirring until cool enough to spread.

In a separate glassine envelope, place 1 ounce of shredded coconut for each six-ounce package of mix, making a total of 7 ounces per package.

QUICK CHOCOLATE-FUDGE FROSTING

Powdered Sugar	100 lb.	Powdered Mace	1½ oz.
Dextrose (Cerulose)	8 lb.	Micronized Cocoa	6 lb.
Nonfat Milk Solids	5 lb.	Semisweet, Grated	
Pulverized Salt	1 oz.	Chocolate	6 lb.
Vanillin			
(Fine Crystals)	½ oz.		

Mix preferably in a drum-type mixer inclined at an angle so that ingredients can be added while the mixer is rotating. Add the chocolate last. Continue mixing to absolute homogeneity.

Package in three-quarter-pound packages.

Directions: To the contents of this package, add 4 tablespoons of water and 4 tablespoons of butter or margarine.

MARSHMALLOW PASTE OR CREME TOPPING (Bakers' Pail Goods)

Formula No. 1

Sugar	30 lb.	Sodium Benzoate	1 oz.
Glucose (Corn Syrup)	30 lb.	Vanilla Extract	
Cornstarch	2 lb.	or Flavor	To suit
Dried Egg Albumen	2 oz.	Water	8 pt.
Gelatin	3 lb.		

Cook the sugar and glucose to 230°F. Then add the gelatin, dissolved in 5 pints of water. Put into a beater and beat until cool; then add the cornstarch, mixed in 2 pints of water. Continue beating and, when light, add the egg albumen, dissolved in ½ pint of water, and the sodium benzoate, dissolved in ½ pint of water. Mix thoroughly. Flavor with vanilla or other flavor, if desired.

Formula No. 2

Sugar	18 lb.	Dried Egg Albumen	8-9 oz.
Glucose (Corn Syrup)	22 lb.	Vanillin Crystals	½ tsp.
Cornstarch (Lump)	4 lb.	Water	6 gal.

Bring the sugar, glucose, and 5 gallons of water to a boil. Mix the corn-starch in 1 gallon water until smooth and add to the boiling batch. Use a copper pan for boiling. Cook and stir in a steam kettle or over a slow fire until you can catch a little when testing in cold water. Remove from the fire, let cool slightly, and pour into a beater. Beat slowly. Soak the albumen overnight in water enough to cover, stir well and then beat to a stiff froth. Add the vanillin crystals and the beaten albumen to the other ingredients, and beat until white and light. A marshmallow beater is necessary as hand beating is not sufficient. Use a porcelain dish for soaking the albumen, as metal will discolor it.

This product may be packed in wooden pails, lined with waxed paper, or in tin or glass cans with tightly fitting covers.

PREPARED PANCAKE FLOURS

In making prepared pancake flours, various blends of flour are used. As a general rule, mixtures of medium-grade wheat flour, corn flour, and buckwheat flour are suitable for this purpose. Rye flour and rice flour are sometimes employed in very small quantities, as too much of these would make a sticky product. Barley flour is not suitable. Some of these flours contain corn sugar or desiccated whole eggs. Some contain a small amount of powdered buttermilk. When this is used, more soda is required than when acid phosphate and soda alone are depended on for the leavening action.

Formula No. 1

	lb.		lb.
Acid Calcium Phosphate	7	White Corn Flour	100
Bicarbonate of Soda	3 $\frac{1}{4}$	Medium Grade	
Salt	3	Wheat Flour	86 $\frac{1}{4}$

The corn flour should be thoroughly dry, preferably kiln dried.

First mix the phosphate, soda, and salt thoroughly. Then combine these with the corn flour by repeated sieving and finally combine this mixture with the wheat flour in the same manner.

Formula No. 2

	lb.		lb.
Acid Calcium Phosphate	7	Buckwheat Flour	130
Bicarbonate of Soda	3 $\frac{1}{4}$	Low-Grade	
Salt	3	Wheat Flour	56 $\frac{3}{4}$

Mix as directed in Formula No. 1.

Any desired quantity of corn sugar may be added to both formulas. About 2½ pounds to the given batch is generally satisfactory, but some makers use up to 4 pounds.

When these flours are made on a commercial scale, a mixing and sifting machine is quite essential.

Formula No. 3

	lb.		lb.
Acid Calcium Phosphate	7	White Corn Flour	100
Bicarbonate of Soda	4	Dessicated Whole Eggs	2
Salt	3	White Corn Flour	100
Medium-Grade Wheat		Corn Sugar	2½
Flour	90	Dessicated or Powdered	
Rye Flour	10	Buttermilk	6

Mix as directed in the previous formulas, adding the last three ingredients last.

Formula No. 4

	lb.		lb.
Buckwheat Flour	75	Acid Calcium Phosphate	7
Medium Grade Wheat		Bicarbonate of Soda	4
Flour	75	Powdered Buttermilk	6
White Corn Flour	35	Powdered Whole Egg	2
Salt	3		

Mix as directed in formula No. 3. More or less corn sugar may be added to give the desired sweetness.

Formula No. 5

	lb.		lb.
Wheat Flour	90.49	Argo Cornstarch	3.00
Corn Flour	1.00	Bicarbonate of Soda	0.38
Rice Flour	3.00	Cream of Tartar	0.38
Salt	0.75		

Mix thoroughly by sieving several times, and stirring well after each sieving. Or use a mixing and sifting machine since a thorough combination of ingredients is essential.

SELF-RAISING BISCUIT FLOUR

	lb.		lb.
First-Quality Winter-Wheat		Acid Calcium Phosphate	7
Flour	186¾	Sodium Bicarbonate	3¼
		Salt	3

Have all ingredients perfectly dry and mix thoroughly, blending the last three together and then combining with the flour. Mix by sieving or in a sifting and mixing machine.

To use, mix with the required amount of shortening and milk or water to a good dough, roll, cut, and bake in the usual manner.

CREAM OF TARTAR BAKING POWDER

	lb.		lb.
Cream of Tartar	48	Sodium Bicarbonate	28
Tartaric Acid	3	Powdered Starch	21

Have all materials in fine powder form and perfectly dry. When prepared on a small scale, the mixing can be done by passing through a sieve and stirring well after each sieving. On a large scale, a sifting and mixing machine is necessary.

Ingredients of baking powders should be thoroughly air dried, not calcined. Calcined substances have the tendency to absorb moisture from the air and lump.

Always package baking powders in air tight containers.

The small proportion of tartaric acid used in the formula causes immediate liberation of gas when the powder is mixed with the other materials used in baking. The reaction of the cream of tartar with the soda will continue to form carbon dioxide for some time, giving perfect aeration.

PHOSPHATE BAKING POWDER

	lb.		lb.
Acid Calcium Phosphate	15	Cornstarch	15
Sodium Bicarbonate	10		

Mix intimately by sieving.

PHOSPHATE-ALUM BAKING POWDER

	lb.		lb.
Acid Calcium Phosphate	20	Sodium Bicarbonate	29
Dried (Burnt) Alum	20	Cornstarch	30

Mix intimately by sieving.

ALUM BAKING POWDER

	lb.		lb.
Burnt (Dried) Alum		Sodium Bicarbonate	17
(Sometimes Sold as C.T.S.		Cornstarch	25
Cream of Tartar Substitute)	16		

Mix intimately by sieving.

VEGETABLE OLEOMARGARINE

Two melting tanks are necessary, one placed above the other. The second placed sufficiently high to run into the churn. The churn is 2½ feet above the floor to run into a tank. For high quality margarines, the finest oils and milk should be used. The oils are melted in the first tank and gradually run off into the second tank. The lecithin is melted in the first tank with the oils. The melted oils and lecithin are collected in the second tank, the milk is added, and the whole mass churned. It is then run off from the churn. The margarine comes in contact with ice water at the moment it leaves the churn and drops into the tank underneath. As soon as the churn is run off, the margarine, which is floating on the cold water, is lifted up by shovels into a bogie on wheels. It is then taken to the rollers and put through two or three times to dehydrate it.

Package in one pound or smaller packages according to requirements of the Food and Drug Law, (see Index).

Hardened Vegetable Oils		Salt	2¾ lb.
Cotton Seed Oil	48 lb.	Monoglyceride	¼ lb.
Soya Bean Oil	32 lb.	Lecithin	90.00 g.
Skim Milk	17 lb.	Isopropyl Citrate	4.53 g.
Carotene	To suit		

Mix the cottonseed and soya bean oils with the lecithin, monoglyceride and carotene, and melt the entire mass. To the other tank add the skim

milk, vitamins (if used), salt, and the isopropyl citrate (to preserve the color and flavor) and churn as directed.

Fish oil may be added as a source of vitamins A and D but care should be used as the fish-oil flavor may be too strong.

BAKED FRUIT PUDDING

Cut Figs	2 oz.	Egg Yolks	2
Cut-up Cherry Glacé	2 oz.	Flour	2 lb.
Greengage Glacé		Honey	$\frac{1}{4}$ lb.
(Cut Small)	2 oz.	Soft Brown Sugar	$\frac{1}{4}$ lb.
Pineapple Glacé		Grated Nutmeg	$\frac{1}{4}$ oz.
(Cut Small)	2 oz.	Powdered Ginger	$\frac{1}{4}$ oz.
Chopped Apples	2 oz.	Ground Cinnamon	$1\frac{1}{2}$ dr.
Currants	$\frac{1}{2}$ lb.	Ground Mace	$\frac{1}{4}$ dr.
Seeded Raisins	1 lb.	Ground Cloves	$\frac{1}{4}$ dr.
Chopped Walnuts	2 oz.	Water or Additional	
Apricot Jam	$\frac{1}{4}$ lb.	Grape Juice	4 oz.
Quince Jam	$\frac{1}{2}$ oz.	Salt	30 gr.
Port Wine	$\frac{1}{2}$ pt.	Veal Suet	$\frac{3}{4}$ lb.
Brandy	$\frac{1}{2}$ pt.	Juice of one Large Lemon	
Grape Juice	2 oz.	Bread Crumbs	2-4 lb.
Butter	4 oz.	Baking Powder*	2 tsp.
Whole Eggs	6		

Mix all the fruits. Rub up the butter with the suet, which has been warmed enough to soften. Mix the baking powder with the flour and bread crumbs by sifting. Then mix the sugar with the flour. Blend all the liquids. Dissolve the honey in the liquids and mix in the flour and bread crumbs. Then work in the mixed fruits and eggs, continuing to mix until an even, heavy paste is formed. Now work in the butter, suet and spices, sifting in the spices gradually and mixing well. The quantity of bread crumbs used will determine the cost of the finished product. The bread crumbs should be very fine, ground almost to a flour and should dry without browning.

For marketing the pudding mix should be filled into cans and processed in the usual manner. When no baking powder is used the cans may be filled full before capping. If the baking powder is used, fill to about $\frac{1}{4}$ inch from the top, then cap. Close the vent in the cap and process in boiling water for 10 minutes. Tap and allow to blow, then again close the vent with solder and process $\frac{3}{4}$ hour for one-half pound

cans; 1 hour for one-pound cans; 1 hour 45 minutes for four-pound cans. The processing should be done in boiling water temperature. Do not cook under pressure.

Before serving, put the can into hot water long enough to heat through. The amount of sugar may be increased if a sweeter pudding is desired. This yields a superior pudding.

* Omit if heavy solid pudding is desired.

FRUIT-PUDDING POWDER

Good Pastry Flour	1½ cups	Ground Cinnamon	1 tsp.
Baking Soda	½ tsp.	Ground Cloves	½ tsp.
Cream of Tartar	1 level tsp.	Seedless Raisins, or	
Fine Ground Nutmeg	¼ of a small one	Currants	½ cup

Mix well together and use the given quantity for one package.

Directions for use: To the contents of a package, add ½ cup of cooking molasses, and 1 cup of sweet milk or water. Beat well together, put in a well-buttered tin can, cover tightly, and place in a kettle of boiling water. A little suet or butter may be added if desired. Steam or boil for 1½ to 2 hours, keeping the water boiling all the time.

To make fruit cake with pudding powder, add to the contents of the package, 1 cup of molasses, ½ cup sweet milk, one egg, and butter the size of an egg, melting the butter before adding. Mix well and bake for 1 hour.

CHOCOLATE-FLAVORED NUTRITIVE BEVERAGE POWDER

		Powdered Malt	1 oz.
Powdered Egg Albumin	1 oz.	Powdered Cane Sugar	4 oz.
Powdered Cocoa	4 oz.	Powdered Skim Milk to make	1 lb.

Mix the ingredients thoroughly by sifting and sieving.

Pack in tins or glass containers with tight-sealing covers.

Directions for use: Adults should take 2 teaspoons added to a glass or a cup of milk: It is better to rub the powder first to a smooth paste with a small amount of milk and then add the balance of the milk. This amount may be taken two or three times a day between or with meals. Children should take it according to age.

This powder yields a palatable nutritive food drink which is beneficial in convalescence, for growing children, elderly persons, and working men and women.

COCOA-FLAVORED NUTRITIVE BEVERAGE
(by weight)

	oz.		oz.
Baker's 120° Malt Extract	10	Salt	$\frac{1}{8}$
Fresh Egg Albumen	5	Granulated Cane Sugar	
Powdered Cocoa	$1\frac{1}{2}$	Syrup	$83\frac{3}{8}$

The ingredients are mixed cold, rapidly, preferably by mechanical means.

To make large quantities, suitable mechanical equipment is necessary. For comparatively small quantities, a smooth iron or steel hot plate, evenly heated by gas or other means, greased in the same manner and as often as a waffle iron should be used. The mixture should be poured in as thin a film as possible on the hot plate and quickly scraped off with a spatula, in thin scales as soon as it has received enough (but not too much) heat.

An important fact in the manufacture of this product is that all malt extracts, while thick syrups, do not crystallize. The degrees indicate the diastatic value and 1200 is the highest available. Some malt extracts are inverted and therefore, do not crystallize. As malt extracts vary in diastatic value try out a small sample and change the quantity in the formula, if necessary. Malt extracts are available which have no diastatic value; these are usually dark in color and have been highly heated, or partially caramelized to destroy the diastatic value partially or entirely.

Instead of fresh egg albumen, dried egg albumen may be used. In this case use one-seventh the amount given in the formula of dried albumen and seven times as much water. Dried albumen should be soaked in water overnight.

Cold-process syrup should be used because in boiling syrup, the sugar is more or less inverted and it loses crystallizing power.

This product is beneficial as a nourishing beverage for young and old. It may be used hot or cold daily in place of tea or coffee.

Directions for use: Stir 2 or 3 heaping teaspoons into a cup or glass of hot milk for a hot beverage, sweeten to taste if not sweet enough; for a cold beverage, add to cold milk and stir or shake well.

SEASONED TABLE SAUCE

Water	50 gal.	Roasted Onions	10 lb.
Anchovies	9 lb.	Cheyenne Pepper	1¾ lb.
Tamarinds	14 lb.	Whole Cloves	2½ lb.
Dried Mushrooms	4 lb.	Bruised Ginger Root	1½ lb.
Ground Fenugreek Seed	2 lb.	Oil of Lemon	2 fl. oz.
Salt	6 lb.	Commercial Acetic Acid	3 gal.
Fine Chopped Garlic	5 lb.	Canton Soy	3-5 gal.

Put all the ingredients except the oil of lemon, acetic acid and soy into a kettle. Bring to a boil and cook slowly for an hour. A steam-jacketed kettle is best for cooking, but it may be cooked over a slow fire stirring occasionally to prevent burning on the bottom of the kettle. If boiled slowly, there is little danger of burning.

Turn off the heat and add the acetic acid, mixing well. Then stir in the oil of lemon and the soy. Strain into a clean barrel and bung up tightly.

All of the better grades of sauces on the market contain a considerable proportion of Canton soy. This is an imported product made from soy-beans. In cheaper sauces this is often replaced with New Orleans molasses. This, however, does not give as good a flavor, and sauces made with molasses have a considerable tendency to fermentation. If molasses is used, the addition of 0.1% of sodium benzoate to each gallon of the finished sauce is advisable. This is about 60 grains to the gallon. State on the label: Contains 0.1% benzoate of soda.

The onions used are peeled and roasted in an oven until soft before combining with the other ingredients. The roasted onions should be crushed before adding.

All table sauces owe much of their quality to proper aging. Some of the better grades are aged from 6 months to 1 year before selling. This aging is best done by putting the strained sauce in a tightly-bunged, clean barrel. Strain again before bottling for sale.

For a darker-colored product, add sufficient caramel.

FANCY TABLE MUSTARD

Dark Mustard Seed	25 lb.	Salt	5 lb.
Yellow Mustard Seed	10 lb.	Turmeric Powder	1 lb.
Yellow Mustard Bran	10 lb.	Ground Coriander Seed	5 oz.
Ground Cheyenne		Ground Celery Seed	1½ oz.
Pepper	2 oz.	Ground Cloves	2 oz.
Ground Fennel Seed	1 oz.	Ground Cumin Seed	2 oz.

Ground Nutmeg	2 oz.	Onions	5 oz.
Powdered Bay Leaves	1 oz.	Garlic	2½ oz.
Parsley Herb	10 oz.	Vinegar (40) Grains	30 gal.
Thyme	2 oz.		

Grind thoroughly in a mustard mill. If a very bright color is wanted, 2 ounces of yellow certified food color may be added. Trieste seed is the best dark mustard seed and will give the finest product. The parsley herb may be either fresh or out of brine.

MEDIUM TABLE MUSTARD

Dark Mustard Seed		Ground Cloves	1 lb.
Bombay or California	30 lb.	Ground Bay Leaves	4 oz.
Yellow Mustard Bran	16 lb.	Salt	12 lb.
Dark Mustard Bran	20 lb.	Vinegar (90 Grain)	42 gal.
Powdered Tumeric	5 lb.	Water	50 gal.
Ground Coriander Seed	1 lb.	Wheat Flour	30 lb.
Ground Cheyenne Pepper	6 oz.	Yellow Certified Food	
Ground Black Pepper	8 oz.	Coloring (Mustard)	2 oz.
Ground Celery Seed	4 oz.		

Add 30 pounds of wheat flour to 50 gallons of water, mixing cold to a thin batter. Avoid the formation of lumps. Then add the yellow mustard coloring and cook slowly until a heavy paste is formed, stirring while cooking to avoid burning. Mix this paste with the spices, vinegar, etc., and grind in the usual manner in a mustard mill.

GRAVY FLAVOR

Sodium Glutomide	1 oz.	Caramel	2 pt.
Garlic Extract or Liquid		Sodium Benzoate	¼ oz.
Flavor*	2 oz.	Water	to make 1 gal.
Celery Extract or Liquid			
Flavor†	2 oz.		

Mix thoroughly.

* Garlic Liquid Flavor

Finely Grated Fresh Garlic 1 lb. Sherry Wine to make 1 gal.
Mix in a one gallon jar and macerate 1 week, shaking well every day. Then filter and make up to 1 gallon.

† Celery Liquid Flavor

Ground Celery Seed 1 lb. Sherry Wine to make 1 gal.
Mix in a one-gallon jar and macerate 1 week, shaking well every day. Then filter and make up to 1 gallon with water.

GARLIC SALT

Dried Garlic	1 lb.	Table Salt	9 lb.
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Grind together to a fine powder in a mill.

CELERY SALT

Finely Ground Celery	Table Salt	9 lb.
Seed	1 lb.	

Mix well by passing through a rotary sieve five times.

FLAVORING EXTRACTS

ALCOHOLIC FLAVORS

(United States Standard Strengths)

In each case the quantity of essential oil listed is slightly in excess of the actual minimum quantity required. Using the following proportions, a full standard strength extract will be assured.

<i>Flavor</i>	<i>Amount of Oil</i>	<i>Amount of Alcohol</i>	<i>Strength of Alcohol</i>
	fl. oz.		%
Almond	1.28 (10 $\frac{1}{4}$ fl. dr.)	To make 1 gal.	27
Anise	3.84 (3 $\frac{7}{8}$ fl. oz.)	To make 1 gal.	65
Celery	0.384 (3 $\frac{3}{4}$ fl. dr.)	To make 1 gal.	55
Cassia (Cinnamon)	2.56 (2 $\frac{3}{5}$ fl. oz.)	To make 1 gal.	65
Cloves	2.56 (2 $\frac{3}{5}$ fl. oz.)	To make 1 gal.	75
Lemon	6.40 (6 $\frac{1}{2}$ fl. oz.)	To make 1 gal.	85
Lemon (Terpeneless)	0.256 (2 $\frac{1}{8}$ fl. dr.)	To make 1 gal.	60
Nutmeg	2.56 (2 $\frac{3}{5}$ fl. oz.)	To make 1 gal.	76
Orange	6.40 (6 $\frac{1}{2}$ fl. oz.)	To make 1 gal.	90
Peppermint	3.84 (3 $\frac{7}{8}$ fl. oz.)	To make 1 gal.	80
Rose	0.56 (2 $\frac{1}{8}$ fl. dr.)	To make 1 gal.	40
Spearmint	3.84 (3 $\frac{7}{8}$ fl. oz.)	To make 1 gal.	80
Thyme	0.256 (2 $\frac{1}{8}$ fl. dr.)	To make 1 gal.	50
Wintergreen	3.84 (3 $\frac{7}{8}$ fl. oz.)	To make 1 gal.	57

All formulas are figured in the United States gallon of 128 fluid ounces.

Pure ethyl (grain) alcohol must be used in making flavoring extracts. It is usually sold at 95% strength. In making flavoring extracts, the

oils should first be mixed with the alcohol and the water required to dilute to the given strength added slowly, with stirring. If colors are used, they should be added before filtering. Let the mixture stand for a few hours and, if not perfectly clear, filter; put a small quantity of powdered pumice in the filter to facilitate clearing.

Alcohol sufficient to hold the oils in solution *must* be used, as otherwise a part of the oil will be filtered out and the strength decreased. Such oils as lemon, orange, peppermint, and spearmint require a high percentage of alcohol to hold them in perfect solution. Stronger extracts may be made by increasing the quantity of essential oils used. When this is done it is usually necessary to use a higher percentage of alcohol.

Flavoring extracts may be prepared from artificial fruit oils. Imitation fruit oils vary so much in strength as sold by different makers that no positive rule as to the quantity to be used can be given. The firms from which these are purchased will furnish information concerning the proper quantities and the alcoholic strength necessary to hold them in solution.

If colors are added, the label must state; Artificially Colored. Certified food colors should always be used in coloring.

FLAVOR EMULSIONS

(Lemon Flavor)

Process No. 1

Emulsifying Powder*	6 oz.	Sugar Syrup	3½ pt.
Lemon Oil	6½ oz.	Water	4 pt.
Refined Cotton Seed Oil	½ oz.		

Put the powder into a homogenizer, add the oil and 2 pints of water. Run for 15 minutes, then add the syrup, about 1 pint at a time, running the homogenizer for 3 to 5 minutes after each addition. Now add the remainder of the water in the same way. Where the food laws permit, it is advisable to add 0.1% sodium benzoate as a preservative. This corresponds to about 1 dram to the gallon. When used, this must be stated on the label. Color the finished product with certified food color, dissolving this in the smallest amount possible of water and adding to the homogenizer.

Other flavors are made in the same way, using the quantities of oils specified in the table which follows. These give standard-strength flavors. Increase the quantity of oil to suit if stronger flavors are desired.

To each pint of essential oil, such as lemon, orange, lime, etc., add 2 ounces of refined cottonseed oil (salad oil). This aids greatly in making a good emulsion.

Flavors made by Process No. 1 will not "break", or separate free oils, giving a stable emulsion. On long standing, it may form two layers in the bottle, but it is quickly recombined by shaking. This is characteristic of all emulsions which are thin enough to pour freely.

* Make this by mixing thoroughly, 8 ounces of powdered gum Arabic, 8 ounces of powdered gum tragacanth, and 6 ounces of powdered cornstarch.

ORANGE FLAVOR

Process No. 2

Emulsifying Powder*	6 oz.	Alcohol	1 pt.
Glucose Crystals	4 pt.	Water	3 pt.
Orange Oil	6½ oz.		

Put the emulsifying powder, glucose and oil of orange in a homogenizer and run for 15 minutes, then gradually add 3 pints of water. When the water is all worked in, add the alcohol and run for 5 minutes longer. Color to suit with certified food colors.

Flavors made by the above process may separate slightly on standing and as a precaution should be labeled "Shake before using." Make other flavors by the same process.

* Prepare this by mixing thoroughly 9 ounces of powdered gum Arabic and 7 ounces of powdered sodium citrate.

ALMOND FLAVOR

Process No. 3

Powdered Indian Gum	1 lb.	Water	2 gal.
Oil of Almonds	20½ dr.	Syrup	2 gal.

Put the gum into 1 gallon of the water and let stand overnight. Then add 1 gallon of syrup and heat until it begins to boil. Cool and put into a homogenizer; add the oil of almonds (or other essential oil) and run for 15 minutes. Add the remainder of the syrup and water as in Process No. 1. Color to suit. Add 4 drams of sodium benzoate, where permitted by law. Put up in wide-mouthed bottles. Make other flavors by the same process.

BASIC FORMULA FOR PASTE FLAVORS

	oz.		oz.
Glycerin	4	Powdered Sugar	8
Glucose	6	Essential oil	to suit
		Color	sufficient

Heat the glucose but do not boil. Add the glycerin and the color; mix well. Add the oil and mix well again. Then work in the sugar to form a smooth paste. Pack in jars.

QUANTITY OF OILS REQUIRED TO A GALLON OF FLAVOR

Almond	10 $\frac{1}{4}$ dr.	Nutmeg	2 $\frac{3}{5}$ oz.
Anise	3 $\frac{7}{8}$ oz.	Orange	6 $\frac{1}{2}$ oz.
Celery	3 $\frac{3}{4}$ dr.	Peppermint	3 $\frac{7}{8}$ oz.
Cinnamon	2 $\frac{3}{5}$ oz.	Rose	2 $\frac{1}{4}$ dr.
Cloves	2 $\frac{3}{5}$ oz.	Spearmint	3 $\frac{7}{8}$ oz.
Lemon	6 $\frac{1}{2}$ oz.	Wintergreen	3 $\frac{7}{8}$ oz.

There is no standard for artificial fruit-oil flavors. The proportion generally used is 6 to 8 ounces per gallon. For stronger flavors, use more oil. This applies also to true flavors. Artificial oils generally hold in solution more readily than natural oils, so that emulsions can be safely made. The artificial flavors include strawberry, raspberry, pineapple, peach, cherry, grape, banana, etc.

Flavors from essential oils may be labeled "Pure" or "True." Those from artificial oils should be labeled "Artificial" or "Imitation."

A trace of artificial peach fruit oil may be added to practically any fruit flavor to advantage. This should be handled delicately, but a mere trace, about 1 dram to the gallon of finished extract will give a smoothness which otherwise would not be present.

ARTIFICIAL FLAVORING EXTRACT

Process No. 1

(With Fruit Juice)

Artificial Fruit Oil	6-8 oz.	Alcohol	5 pt.
Glycerin	8 oz.	Water	to make 1 gal.
Pure Fruit Juice	8 oz.		

Mix the fruit oil with the alcohol; add the glycerin and mix well. Then add the fruit juice and mix again. Finally add the water. Filter clear after standing for a day and color to suit with certified food colors.

Process No. 2

Artificial Fruit Oil	2-6 oz.	Glycerin	4 oz.
Alcohol	16 oz.	Water	to make 1½ pt.

Dissolve the fruit oil in about 8 oz. of alcohol, add the glycerin, mix and add water until it begins to cloud, then add alcohol to clear it up. Water and alcohol may be used alternately until you have 24 oz. of finished product. For general household use 2 oz. of fruit oil are added to each 24 oz. of flavor. Certified food colors may be used to suit.

Flavoring extracts are defined by the law as a solution of a flavoring substance in alcohol. Products made with any of the nonalcohol solvents should be labelled "Flavors" instead of "Extracts." Nonalcohol solvents may replace the alcohol in the processes listed.

MIXED-FRUIT FLAVORING EXTRACT

Natural or Imitation		Cinnamon Extract	3¾ fl. oz.
Vanilla Extract*		Vanillin	2 oz. 6 dr.
Terpeneless Lemon		Syrup	25½ fl. oz.
Extract	16 fl. oz.	Alcohol	19½ fl. oz.
Terpeneless Orange		Water	to make 1 gal.
Extract	16 fl. oz.		

Dissolve the vanillin in the alcohol. Add the cinnamon extract, then the vanilla, lemon, and orange extracts. Mix well. Then add the syrup and mix again. Finally add the water slowly, with constant stirring. Let stand for a day, agitating occasionally, and filter clear.

*IMITATION VANILLA EXTRACT

Vanillin	1 oz.	Sugar Syrup	½ pt.
Alcohol	1 pt.	Water	to make 1 gal.
Glycerin	½ pt.	Caramel	to color

Dissolve the vanillin in the alcohol, add the glycerin and syrup, and mix; then add the water and finally add about 1 ounce of caramel. Let stand for 24 hours and, if not clear, filter.

COMPOUND FRUIT FLAVOR

Raspberry Essence		Strawberry Essence	
(household type)	2 oz.	(household type)	2 oz.
		Mix thoroughly.	
Pineapple Essence		Lemon Essence	
(household type)	6 oz.	(household type)	4 oz.
		Rum Essence*	2 oz.
Mix thoroughly.			

* RUM ESSENCE: 8 ounces of concentrated rum essence** and 1 gallon of 50% alcohol.

** Concentrated Rum Essence:		Acetic Ether	40 oz.
Oil of Cloves	2½ oz.	Butyric Ether	40 oz.
Oil of Cinnamon	2½ oz.	Commercial Rum Ether	4¾ gal.
Oil of Chamomile (Roman)	1¼ oz.	95% Alcohol	½ gal.

VANILLA-FRUIT BLEND FLAVORING EXTRACT

Pure or Artificial Vanilla		Artificial Peach oil	1 pt.
Extract	1 gal.	Commercial Rum Ether	½ pt.
Artificial Strawberry		Artificial Raspberry	
Oil	2 pt.	Oil	2 pt.

Mix thoroughly.

BLENDED-FRUIT FLAVORING EXTRACT

	oz.		oz.
Peach Extract	20	Orange Extract	1
Strawberry Extract	2	Apricot Extract	2
Raspberry Extract	1	Pineapple Extract	½
Lemon Extract	1		

Mix thoroughly.

FRUIT-COMPOUND FLAVORING EXTRACT

Formula No. 1

	oz.		oz.
Raspberry Extract	4	Grape Extract	2
Strawberry Extract	4	Peach Extract	1

Mix thoroughly.

Formula No. 2

	oz.		oz.
Cherry Extract	6	Peach Extract	1½
Raspberry Extract	4	Pineapple Extract	½

Blend thoroughly.

LEMON-ORANGE-LIME FLAVORING EXTRACT

Lemon Orange Lime		Warm Water	to make 1 gal.
Oil Blend*	6½ oz.	Certified Yellow Color	to suit
Grain Alcohol	7½ pt.		

Mix the oil with the alcohol; then add the water slowly, with constant stirring. Let stand for a few hours, and if not perfectly clear, filter. Put

a small quantity of purified talc or finely powdered pumice stone into the filter to assist in clearing. For coloring, use lemon-shade certified food color. Dissolve it in water and add, a little at a time, until the tint desired is obtained. If coloring matter is used the label should state: "Artificially Colored."

Substituting of fresh oil of lemon for the same amount of the blend in the formula will produce a U.S. standard pure-lemon extract. Orange extract may be prepared in the same manner.

* Prepare by mixing 8 ounces of oil of lemon, 6 ounces of oil of sweet orange, and $\frac{1}{2}$ ounce of oil of limes.

TERPENELESS PURE LEMON EXTRACT (U.S. Standard)

Terpeneless Oil of		Warm Water	to make 1 gal.
Lemon	2 $\frac{1}{8}$ fl. dr.	Certified Yellow Food	
Grain Alcohol	3 $\frac{1}{2}$ pt.	Color	to suit

Mix the oil with the alcohol; then add the water gradually, with constant stirring. Let stand for a few hours and, if not clear, filter and color in the same way as in the preceding formula.

Label: "Pure Terpeneless Lemon Extract—Artificially Colored."

Orange extract may be prepared in the same manner.

BLENDED FRUIT FLAVOR

Pineapple Essence*	4 oz.	Oil of Cinnamon	1 $\frac{3}{4}$ dr.
Grape Essence**	4 oz.	Oil of Cloves	1 $\frac{1}{2}$ dr.
Cognac Essence†	4 oz.	Vanillin	5 gr.
Oil of Mace	90 min.	50% Alcohol	1 qt.

Mix the last five ingredients together and, after standing for an hour or so, filter if not clear. To the filtrate add the essences. Mix thoroughly.

* Mix 6 ounces of artificial pineapple oil with 1 gallon of diluted U.S.P. alcohol.

** Mix 6 ounces of artificial grape oil with 1 gallon of diluted U.S.P. alcohol.

† Mix 4 ounces of cognac oil (oenanthic ether) with 1 gallon of 50% alcohol.

FRUIT-VANILLA FLAVORING EXTRACT

Formula No. 1

Pure or Artificial		Artificial Strawberry Oil	2 oz.
Vanilla Extract	1 gal.	Commercial Rum Ether	3 oz.
Artificial Raspberry Oil	4 oz.		

Mix thoroughly.

Formula No. 2

Pure or Artificial		Artificial Raspberry Oil	1/2 gal.
Vanilla Extract	1 gal.	Commercial Rum Ether	1/2 pt.
Artificial Peach Oil	1 pt.		

Mix thoroughly.

IMPROVED MAPLE FLAVOR

Vanillin	6 dr.	Tincture Catechu	1 oz.
Solid Fenugreek		Glycerin	1 qt.
Extract	1 lb.	Caramel Coloring	1 qt.
Cocoa-Coffee Percolate*	1 pt.	Water	to make 1 gal.

Dissolve the vanillin in the glycerin by heating to about 140°F. Rub up the solid extract of fenugreek with the cocoa-coffee percolate and 1 quart of water. When well mixed, add the glycerin-vanillin mixture, the tincture of catechu and mix thoroughly. Then add the caramel and mix again. Finally add enough warm water to make the total product measure 1 gallon.

This is a concentrated flavor which is used at the rate of 1 ounce to 3 or 4 gallons of syrup.

To prepare a commercial strength use:

Caramel	1 qt.	Concentrated Extract	1 gal.
Warm Water	2 qt.	Glycerin	1 qt.

Mix thoroughly. Use about 1/2 ounce to 1 gallon of syrup.

* Percolate in an ordinary coffee percolator 1 ounce of powdered cocoa and 4 ounces of freshly ground coffee, strain, and add water to make 1 quart.

BUTTER-SCOTCH HOUSEHOLD FLAVOR

95% Edible Butyric		Vanillin	1/2 oz.
Acid	1 oz.	Alcohol	1/2 gal.
Butyric Ether	1/2 oz.	Water	1/2 gal.

Dissolve the vanillin in the alcohol, add the butyric acid and butyric ether, mix well and, allow to stand for a day. If not clear, filter.

This butter flavor is very powerful and must be used cautiously. In proper proportion it gives an almost perfect butter effect. Used in excess, it is highly objectionable.

IMITATION VANILLA FLAVOR

Vanillin	1¼ oz.	Sugar Syrup	1 pt.
Alcohol	2 pt.	Water	to make 1 gal.
Glycerin	1 pt.		

Mix thoroughly.

BUTTER-SCOTCH FLAVOR

Imitation Vanilla Flavor	1 gal.	Yellow Certified Food Color	to suit
Butter Flavor (See Index)	15 min.		

Mix thoroughly.

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ARTIFICIAL WALNUT FLAVOR

Vanillin	1 oz.	Tincture of Sandalwood†	5 oz.
Oil of Cinnamon	6 dr.	Solution of Oil	
Oil of Nutmeg	6 dr.	Orris Concrete‡	2½ oz.
Eugenol	6 dr.	Tincture of Orris (2 lb. to 1 gallon)	40 oz.
Oil of Rose Geranium	1½ oz.	Tannic Acid	4 dr.
Alcohol	400 oz.	Solution of Wintergreen	
Tincture of Fenugreek*		Leaves (1 to 50 in Alcohol)	19½ oz.
Concentrate	160¾ oz.		
Tincture Ulmi**	11 oz.		

Dissolve the vanillin in the alcohol. Dissolve the tannic acid in the tincture Ulmi. Mix these two solutions; then add the other ingredients, mixing well after each addition.

* Macerate 48 hours and filter four pounds of Powdered Fenugreek Seed, with 1 gallon of alcohol.

** Macerate for 48 hours 2 pounds of Powdered Slippery Elm Bark, with 4 pints of alcohol and 4 pints of water; then filter.

† Macerate 48 hours 2 pounds of Powdered Sandalwood, with 1 gallon of alcohol; then percolate to make 1 gallon.

‡ This is a 1 to 10 formula, that is, 1 part oil orris concrete to 10 parts of alcohol; ¼ ounce oil of orris concrete dissolved in 2½ ounces alcohol will give the proper strength.

ARTIFICIAL WALNUT FLAVOR

Vanillin Solution*	12 oz.	Fluid Extract of Fenugreek	½ oz.
Fluid Extract of Valerian	4 oz.	Para-Cresol	
Fluid Extract of Licorice	1 oz.	Methyl Ester	15 drops

Mix well, adding the vanillin solution last. Let stand for a few hours and filter. Use the fluid extract of licorice which is used in making syrups.

* Vanillin	1 oz.
Alcohol	26 oz.
Water	to make 1 gal.

PURE VANILLA EXTRACT FROM BEANS

Best-Quality Mexican		Hot Water	1¾ gal.
Vanilla Beans	2 lb.	Glycerin	26 fl. oz.
Alcohol	2¼ gal.	Sugar Syrup	2 pt.

Cut or grind the beans small and put into a clean wooden keg. Pour on the water, boiling hot, and macerate for 24 hours. Then add the alcohol and glycerin. Let stand for 48 hours; then add the sugar syrup and continue the maceration for not less than 4 weeks. The longer the beans are allowed to macerate the better. Finally filter clear. The sugar syrup is made on a basis of from 5 pounds of granulated sugar to ½ gallon of water, dissolving by gentle heat.

TRUE VANILLA-BEAN EXTRACT

Bourbon		Granulated	
Vanilla Beans		Sugar	15 lb.
No. 1	15 lb. 10 oz. 4 dr.	Glycerin	6 pt.
Mexican		Alcohol	25 gal. 4 pt.
Vanilla Beans		Water	17 gal. 4 pt.
No. 1	6 lb. 6 oz.	Potassium	
		Carbonate	3 oz.

Cut and grind the beans, and put into a percolator with 5 gallons of boiling water in which the potassium carbonate has been dissolved. Cover well and let stand for 6 hours; then add 14 gallons and 4 pints of alcohol. Mix and let stand for 4 days; then percolate and follow by washings from the last batch (10 gallons). To the percolator, add the remainder of the alcohol and the remainder of the water (cold). Remove from the percolator 37 gallons and 4 pints of the extract. In this dissolve the sugar and glycerin. Make a washing to be used with the next batch, by pouring 10 gallons of water through the percolator. This gives a very fine product which improves with age, especially if stored in wood.

NONALCOHOLIC ARTIFICIAL VANILLA FLAVOR

Vanillin	1 oz.	Hot Water	to make 1 gal.
Glycerin	2 pt.	Caramel	1 oz.
Sugar Syrup	1 pt.		

Put the glycerin into an aluminum or enameled kettle, add the vanillin, and heat, with stirring, until dissolved. Add the sugar syrup (hot) then gradually add the hot water, with constant stirring. Dissolve the caramel in the mixture.

VANILLA-COMPOUND FLAVORING EXTRACT

Formula No. 1

Pure Vanilla Extract	1 gal.	from Prussic Acid	30 min.
Oil of Sweet Orange	1 oz.	Lead-Free Oil of	
Oil of Lemon	1½ oz.	Cassia	¼ oz.
Oil of Bitter Almonds, Free			

Mix by agitation or shaking.

Formula No. 2

Pure Vanilla Extract	1 gal.	Artificial Raspberry	
Oil of Sweet Orange	¾ oz.	Fruit Oil	¾ oz.

Mix thoroughly.

VANILLIN-MODIFIED FLAVORING EXTRACT

Oil of Ceylon		Oil of Cardamon	30 min.
Cinnamon	2 oz.	Oil of Mace	30 min.
Oil of Cloves	¾ oz.	Vanillin	5 gr.
Oil of Lemon	1½ oz.	Alcohol	6 pt.
Oil of Sweet Orange	1½ oz.	Water	to make 1 gal.

Dissolve the ingredients in the alcohol, add the water, and filter clear, using some pumice to aid in clarifying.

TRUE NONALCOHOLIC VANILLA FLAVOR

Oleoresin of Vanilla	4 oz.	Water	4 pt.
Glycerin	4 pt.		

Heat the glycerin to 230°F. and dissolve the oleoresin in it. Then gradually add the water (hot), with constant stirring. Let stand a few hours; then strain through cheesecloth. Do not heat the glycerin above 240°F. or a disagreeable taste and odor may develop.

PURE LEMON EXTRACT

	oz.		oz.
Exterior Rinds of Lemons	1	Water	1
Fresh Oil of Lemon	1	Alcohol	14

Cut the rinds fine and expose them to the air until partly dry, bruise in a wedgewood mortar, add the water, and work with the pestle until a pulpy mass is formed. Then add to the alcohol and agitate until the color is extracted. Add the oil and set aside for a day or two, with frequent agitation. If the color is not deep enough, add sufficient certified pure food color.

PURE VANILLA EXTRACT

	oz.		oz.
Vanilla Beans (8 in.)	1½	Water	6
Lump Sugar	4	Alcohol	4
Glycerin	2		

Split the beans, cut them fine, and pound in a mortar with the sugar. Add the alcohol and water and macerate 1 week. Then percolate, adding enough water to the percolator to make the whole measure 14 oz. Finally add the glycerin and mix by thorough agitation.

ARTIFICIAL APRICOT OIL

Oil of Bitter Almonds		Heliotropin	4 dr.
Free from Prussic Acid	4 dr.	Solution of Aldehyde C ₁₄	
Amyl Acetate	4 oz.	1:20*	4 dr.
Solution of Jasmine Concrete		True Fruit Apricot	
1:20*	4 dr.	Extract**	2 pt.
Butyric Ether	4 oz.	Glycerin	6 oz.
Peach Flavor	24 oz.	Alcohol	8 oz.

Dissolve the heliotropin in the alcohol, then add the other ingredients, one at a time, mixing well after each addition and adding the true fruit apricot extract last. Let stand for a few hours; then filter.

Keep well covered to avoid the evaporation of the alcohol. Benzaldehyde will work equally well as the true oil of bitter almonds in making up this product and is somewhat cheaper.

* The solution of jasmin concrete and aldehyde C₁₄ (commonly called peach aldehyde) are made by mixing 1 part of the jasmin concrete and the aldehyde with 20 parts of alcohol. The solution should be made up separately for use as needed.

** True-Fruit Apricot Extract:

Dried Apricots	50 lb.	Alcohol	8½ gal.
Water	8½ gal.		

Mix 4½ gallons of alcohol and 4½ gallons of water, pour over the dried fruit, and let stand for 3 days. Drain overnight, the third day, then put the remainder of the alcohol and water on the dried fruit; let stand for 2 days, drain, and press out the fruit. It should yield 17 gallons. This can be made in any desired quantity and stored for use as needed.

ARTIFICIAL FRUIT-OIL COMPOUNDS

Formula No. 1

	oz.		oz.
Artificial Peach Oil	20	Terpeneless Orange Oil	1
Artificial Strawberry Oil	2	Artificial Cherry Oil	1
Artificial Raspberry Oil	2	Artificial Apricot Oil	2
Terpeneless Lemon Oil	1	Artificial Pineapple Oil	1½

Mix thoroughly.

Formula No. 2

	oz.		oz.
Artificial Raspberry Fruit Oil	4	Artificial Strawberry Oil	4
		Artificial Grape Oil	2
		Artificial Peach Oil	1

Mix thoroughly.

Formula No. 3

	oz.		oz.
Artificial Cherry Oil	6	Artificial Peach Oil	1½
Artificial Raspberry Oil	4	Artificial Pineapple Oil	1½

Blend thoroughly.

ARTIFICIAL CHERRY OIL

Amyl Acetate	2 oz.	Artificial Raspberry	
Benzaldehyde	8 oz.	Flavor	10 oz.
Oil of Orris		Oil Cassia	15 drops
Concrete	1 dr.	Cherry Juice*	2 pt.
Vanillin	1½ oz.	Alcohol	2 pt.
Heliotropin	1¼ oz.		

Dissolve the heliotropin and vanillin in the alcohol; then add the other ingredients, one at a time, mixing well after each addition and adding the cherry juice last. Any good grade of artificial raspberry flavor will work well in this product.

* For the cherry juice, 2 pints of the following true-fruit cherry extract may be substituted.

Evaporated Cherries	50 lb.	Water	10 gal.
Alcohol	7 gal.		

Mix the alcohol and water; then pour over the fruit and allow to stand for 4 or 5 days, tightly covered. Then add:

Oil of Cherry Laurel (Free from Prussic Acid)	7½ oz.	Alcohol	3 pt.
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Drain and press out the fruit, and filter the resulting extract.

About ½ ounce of a 10% solution of aldehyde C₁₄ (peach aldehyde) in alcohol to each gallon of artificial cherry oil is a desirable addition. It imparts a smoothness to the flavor which cannot be well obtained by any other means.

ARTIFICIAL CONCORD-GRAPE OIL

	oz.		oz.
Benzyl Butyrate	10½	Acetic Ether	16
Methyl Anthranilate	4½	95% Alcohol	150
Natural or True		Concord-Grape Juice	125
Methyl Salicylate	½	Glycerin	25
Amyl Valerianate	½		
Fluid Valerian Extract	3		

Add the other ingredients in the order given to the alcohol. Then add the grape juice and mix well. Finally add the glycerin and mix again. Let stand, closely stoppered or covered, for a day and filter. Color grape shade with certified food coloring. You may add 1 to 3 ounces of isobutyl propionate and ½ to 1 ounce of cinnamyl propionate to the formula.

ARTIFICIAL CATAWBA-GRAPE OIL

	oz.		oz.
Acetic Ether	25½	Persico Oil	3
Ethyl Butyrate	10	Cognac Oil	4
Benzyl Butyrate	21	Catawba-Grape Juice	100
Methyl Anthranilate	8	95% Alcohol	300
Amyl Valerianate	1	Glycerin	50
Ethyl Salicylate	1	Color	to suit

Add the other ingredients to the alcohol in the order listed. Then add the grape juice and mix well. Finally add the glycerin and mix again. Let stand for a day (covered) and filter. Color to suit.

CONCENTRATED ARTIFICIAL FRUIT OILS

These fruit oils are distinguished for their strength, solubility, and trueness of flavor as well as for their freedom from deleterious or injurious ingredients of any kind. Most of them are compounded on a pure fruit base, fortified with substances which greatly intensify the flavor, giving the rich fruity character of the natural fruit. These fruit oils are

used in the preparation of flavors (flavoring extracts) such as are used in the household for flavoring ice creams, puddings, cakes, etc., as well as for other flavoring purposes.

ARTIFICIAL PEACH OIL

The real true fruit note in a peach flavor comes from the use of aldehyde C_{14} . Aldehyde C_{14} is marketed under various trade names, such as Peach Aldehyde, Peskone, Peskol, Persicol, Jacelle, Peche, etc. It is also obtainable under the name of aldehyde C_{14} . The quantity of this aldehyde in an artificial peach oil may be varied within considerable limits, so as to get the exact flavor desired.

The following formula produces a very excellent product.

Oil of Peach			Fluid Extract of		
Blossoms*	50	fl. oz.	Valerian	14	fl. oz.
Alcohol	400	fl. oz.	Solution of Cinnamic		
Essence of Maple			Alcohol (1 to 10)	45	fl. oz.
Flavor	20	fl. oz.	Solution of Aldehyde C_{14}		
Fluid Extract of			(1 to 100)	60	fl. oz.
Rhatany	90	fl. oz.	Ionone	1	fl. oz.
Amyl Valerianate			Solution of True Rose		
Absolute	2½	fl. oz.	Oil	200	fl. oz.
True Oil of Bitter			Solution of Amyl		
Almonds	5	fl. oz.	Butyrate (1 to 10)	2	fl. oz.
Cocoa Extract†	160	fl. oz.	Solution of Jasmine		
Vanillin Crystals	2½	fl. oz.	Concrete (1 to 10)	1	fl. oz.
True-Fruit Peach			Heliotropin Crystals	5	oz.
Syrup	200	fl. oz.			

Dissolve the vanillin and heliotropin in the alcohol; then add the other ingredients, one at a time, mixing well after each addition. Add the peach syrup last. This is the ordinary peach syrup as used at soda fountains. Any good artificial maple essence will serve the purpose. (see Index).

* OIL OF PEACH BLOSSOMS

Special Neroli Oil§	1 lb.	Vanillin Crystals	64 oz.
White Cognac Oil Genuine	14 oz.	Artificial Apple Oil§§	16 oz.
Oenanthic Ether Absolute	14 oz.	Acetic Ether Absolute	96 oz.
Pure Peach Aldehyde, (Aldehyde C_{14})	4 oz.	Valerianic Ether Absolute	16 oz.
		Alcohol	240 oz.

Mix the alcohol, acetic ether, and valerianic ether, and dissolve the vanillin in the mixture. Then add other ingredients, one at a time, mixing well after each addition.

Any good artificial neroli oil, will serve the purpose, or it can be made according to the following formula:

† COCOA EXTRACT

Roasted and Powdered		Alcohol	4 pt.
Cocoa Beans	2 lb.	Water	4 pt.

Extract the powdered cocoa with the alcohol and water on a water bath, fitted with a reflux condenser, for 8 hours. After cooling, filter and press out the mass, then distil over under low pressure in a vacuum still. Then proceed as follows:

Cocoa Extract	6 pt.	Water	3 pt.
True Vanilla Extract	4 pt.	Sugar-Color	1 oz.
Alcohol	3 pt.	Caramel	

Mix thoroughly.

A simpler method of making cocoa extract, which however, does not yield such a fine product, is as follows:

Baker's Cocoa	1 lb.	Alcohol	½ gal.
Glycerin	4 oz.	Water	½ gal.

Mix thoroughly, then filter through pumice and add:

Vanilla Extract	2 pt.
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A pure vanilla extract is best, but an artificial vanilla may be used for a cheap product. Color to suit with caramel.

Another formula which gives a fair product is as follows:

Fresh Roasted and Ground		Common Salt	3½ lb.
Cocoa Beans	50 lb.	Water	25 gal.

Dissolve the salt in the water, add to the ground cocoa beans, mix well, and let stand for 48 hours, stirring occasionally. Then distil off 25 gallons. To this add:

Vanillin	35 oz.	Benzoate of Soda	3 oz.
Alcohol	5 gal.	Caramel color	sufficient

Mix thoroughly.

§ SPECIAL NEROLI OIL

	oz.		oz.
Best Oil Petitgrain	45	Orange Oil Terpeneless	4½
Geranoil	148	Solution of Nerolin Crystals	
Methyl Anthranilate	34	(1 to 7 in Alcohol)	3½
Linaloöl	30	Cardomon Oil	1¾
Geranyl Acetate	70	Gum Benzoin Solution (1 to	
Terpinyl Acetate	70	5 in Benzyl Benzoate	27
Linalyl Acetate	64	Artificial Musk Solution	
Lemon Oil Terpeneless	2½	(1 to 10 in Benzyl	
Phenylethyl Alcohol	22	Benzoate)	50
Scatol Solution (1 to 100			
in Alcohol)	13		
Mix.			

This artificial neroli oil is especially adapted for use in artificial peach oil.

§§ ARTIFICIAL APPLE OIL

Amyl Butyrate	16 oz.	Lemon Oil	1½ oz.
Amyl Valerianate	32 oz.	Peach Flavor	5 fl. dr.
Butyric Ether	16 oz.	Alcohol	5 pt.

Mix and color with certified food yellow as desired.

ARTIFICIAL PEACH OIL

(Cheap and Simple)

Benzyl Butyrate	18 oz.	Oenanthic Ether	1/2 oz.
Vanillin	1 oz.	Alcohol	1/2 gal.
Heliotropin	1 dr.	Water	1/2 gal.
Benzaldehyde	1/2-1 oz.	Aldehyde C ₁₄	1/2 oz.
Citral	2 oz.		

Dissolve the vanillin and heliotropin in the alcohol, then add the other ingredients, one at a time, with thorough mixing after each addition.

ARTIFICIAL PINEAPPLE OIL

	oz.		oz.
Methyl Anthranilate	20	Artificial Rose Oil*	12
Butyric Ether Absolute	320	Vanillin Crystals	100
Amyl Acetate	60	Alcohol	6000
Benzyl Butyrate	100	Tincture of St. John's	
Terpeneless Lemon Oil	4	Bread**	300
		Pineapple Juice	9000

Add the ingredients in the order given to the alcohol. Then add the tincture of St. John's bread and lastly the pineapple juice. Let stand for at least a week; then filter. Color to suit with certified food color.

*ARTIFICIAL ROSE OIL

	oz.		oz.
Geraniol	10	Linalool	1/2
Citronellol	5	Rose Liquid, Natural	
Geranyl Formate	5	Concrete	5
Phenyl Ethyl Alcohol	5		
Mix.			

** TINCTURE OF ST. JOHN'S BREAD

Powdered St. John's Bread	4 pt.	Water	4 pt.
Alcohol	4 pt.		

Macerate for 48 hours; then percolate, adding sufficient water through the percolator to obtain 1 gallon.

Increased smoothness can be obtained by adding to each gallon about 6 ounces of good-quality artificial peach flavor.

ARTIFICIAL RASPBERRY OIL

(Finest Quality, Soluble, Extra Strong)

Tenfold Oil of Orris	6 g.	Ionone	36 g.
Artificial Oil of Jasmine		Acetic Ether	12 g.
Flowers*	240 g.	Vanillin	6 g.
Cascarilla Oil	19 g.	Valerianic Ether	9 g.
Celery Oil	3 g.	Anethol	6 g.
Citral	19 g.	Aldehyde C ₁₄ **	6 g.

Tincture of Fenugreek		Raspberry Juice	20 litres
Concentrate†	72 g.	Glacial Acetic Acid	100 g.
Alcohol	15 litres		

Add the ingredients, in the order listed, to the alcohol, mixing well after each addition. Then add the raspberry juice, mix well, and finally add the acetic acid.

* ARTIFICIAL OIL OF JASMINE FLOWERS

Liquid Concrete Oil of		Jasmine Base††	8 oz.
Jasmine Flowers	½ oz.		
Methyl Heptin Carbonate	1½ dr.		
Mix.			

** This is sold under various names, such as peach aldehyde, Persicol, Peskone, etc. Used in small quantities it is one of the most valuable additions to many fruit flavors.

† TINCTURE OF FENUGREEK CONCENTRATE

Powdered Fenugreek Seeds	4 lb.	Alcohol	1 gal.
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Mix and let stand, with frequent stirring, for 3 or 4 days; then press out and strain.

†† JASMINE BASE

Benzyl Acetate	200	Benzyl Benzoate	150
Linalool	112	Terpinol	50
Benzyl Alcohol	75	Benzyl Butyrate	2
Ionone	30	Linalyl Acetate	24
Methyl Anthranilate	5	Acetophenone	10

Mix thoroughly.

ARTIFICIAL RASPBERRY OIL

This product, while very satisfactory, has not so fine a flavor as that made by the preceding formula.

Nitrous Ether	4 fl. oz.	Amyl Butyrate	4 fl. oz.
Tincture of Orris		Methyl Salicylate**	⅛ fl. oz.
Root*	50 fl. oz.	Vanillin	¼ oz.
Acetic Ether	20 fl. oz.	Molasses†	½ pt.
Butyric Ether	4 fl. oz.	Water	½ pt.
Benzoic Ether	4 fl. oz.	Glycerin	1 pt.
Amyl Acetate	4 fl. oz.		

Dissolve the vanillin in the tincture of orris root and add to this all the other ingredients, mixing the molasses with the water and glycerin before adding.

This product may be improved by the addition of about 20 fluid ounces of pure raspberry juice, after all other ingredients have been mixed. Let the whole stand for a week or more to properly blend, then run through paper filter to clear. The addition of about $\frac{1}{4}$ ounce of the tincture fenugreek concentration, called for in the first formula, for raspberry oil, is also an improvement for this formula.

* The tincture of orris root is made by using 4 pounds of orris root to 1 gallon of alcohol, mixing and macerating for about ten days, with frequent agitation, and finally filtering.

** In medicinal preparations, use true oil of wintergreen instead of methyl salicylate.

† The molasses should be a good grade, as used for cooking and baking.

ARTIFICIAL STRAWBERRY OIL

	oz.		oz.
Terpeneless Orange Oil	2	Artificial Neroli Oil	$\frac{1}{4}$
Pure Aldehyde C ₁₄	1	Nerolin Crystals	$\frac{1}{2}$
Oenanthic Ether	10	Alcohol	800
Methyl Anthranilate	2	Tincture of St. John's	
Oil of Jasmine Flowers*	4	Bread**	6
Ionone	1	Tincture of Fenugreek	
Benzoic Ether	1	Concentrate†	4
Butyric Ether	2	Strawberry Juice	620
Amyl Butyrate	2	Acetic Ether	1
Anethol	$\frac{1}{2}$	Natural or True Methyl	
Acetophenone	1	Salicylate	$\frac{1}{4}$
Valerianic Ether	$\frac{1}{2}$	Glacial Acetic Acid	5
Vanillin Crystals	4	Red Certified Food	
Solution of True Rose		Color	to suit
Oil (1 to 10 in Alcohol)	2		

Dissolve the vanillin and nerolin crystals in the alcohol; then add the other ingredients, one at a time, mixing well after each addition. All artificial fruit oils improve very much with age.

* Instead of the true oil of Jasmine flowers, the following artificial oil may be used. It is cheaper but does not give quite as fine an effect.

ARTIFICIAL OIL OF JASMINE FLOWERS

	oz.		oz.
Benzyl Acetate	25	Linaloöl	5
Acetate Geraniol	10	Methyl Anthranilate	1
Linalyl Acetate	7	Phenylacetaldehyde	$\frac{1}{2}$

Mix. This can be improved by the addition of some true oil of jasmine flowers.

**** TINCTURE OF ST. JOHN'S BREAD**

St. John's Bread, Powdered	4 lb.	Water	4 pt.
Alcohol	4 pt.		

† TINCTURE OF FENUGREEK CONCENTRATION

Powdered Fenugreek Seeds	4 lb.	Alcohol	1 gal.
Macerate 48 hours; then filter.			

PRACTICAL HOUSEHOLD FORMULAS

Just as food is an essential factor in the maintenance of life and the manufacture of food products is an industry of major importance, so does the manufacturer of household products share in lightening the task of housekeeping for the American public. Their contribution of an attractive variety of products is the result of extensive study and experimenting.

CLEANING AND RENOVATING COMPOUND

Castile Soap	2	oz.	Oleic Acid	$\frac{1}{2}$ fl. oz.
Water	1	pt.	Glycerin	2 fl. oz.
Concentrated Am-			Methyl Alcohol	4 fl. oz.
monia (26°)	2	fl. oz.	Carbon Tetrachloride	96 fl. oz.

Shave the castile soap fine and dissolve in the water by heat. Let cool down to about 100° F. and add the oleic acid and glycerin, mixing well. Then add the methyl alcohol and mix again. Gradually run into the mixture, with constant agitation, the carbon tetrachloride, continuing to mix until it forms a perfectly smooth emulsion. Put up in four-ounce bottles.

This mixture is entirely noninflammable, and if properly made will not break. However, it should always be labeled: Shake Well Before Using.

Benzine may be substituted for the carbon tetrachloride if a noninflammable mixture is not essential. It has nearly the same cleaning action and is considered cheaper than carbon tetrachloride. Mixtures of benzine and carbon tetrachloride have been recommended as being noninflammable, but all such mixtures will take fire unless the proportion

of carbon tetrachloride is very high, about 60% carbon tetrachloride and 40% benzine.

Directions for Use: Apply with a sponge to the article to be cleaned, rubbing to a fine lather. If very dirty rub with a stiff brush. Then rinse off with clear water. If dried paint is to be removed, break up the paint film by rubbing between the hands, then apply the cleaning fluid. In some cases, it may be necessary to soften the paint with turpentine before applying the cleaner.

SPOT AND STAIN REMOVER

Formula No. 1

	%		%
Stoddard Solvent	58.0	Glyceryl Monooleate	2.0
Water	39.0	Sulfated Oil	0.4
Soda Soap	0.1		

A similar but not identical product can be prepared as follows:

Formula No. 2

	<i>Test Batch</i> 6 lb.	<i>Batch</i> 100 lb.
Stoddard Solvent	3 lb. 9 oz.	58 lb.
Soft or Distilled Water	2 lb. 8 oz.	39 lb.
Glyceryl Monooleate	2 oz.	2 lb.
Sulfonated Castor Oil	1/2 oz.	1/2 lb.

Mix the glyceril monooleate, sulfonated castor oil and the Stoddard solvent and warm on a double boiler to 50°C. (avoid open flames, as Stoddard solvent is inflammable. Stir the mixture until all the ingredients are thoroughly mixed. In another container, heat the water to 60° C., then slowly and with moderate agitation pour the water in a thin stream into the Stoddard solvent mixture. Continue stirring as the temperature drops; when room temperature has been reached pour into bottles.

Suggestion for Use: Place a clean cloth pad under the area to be cleaned. Dampen another clean cloth with the fluid and rub gently over and past the spot. For cleaning of small articles, pour cleaning fluid in a shallow container, immerse, leave drip and hang to dry.

This is an odorless spot and stain remover which will not harm delicate fabrics or fast colors. Effective on spots hard to remove. It is a combustible mixture.

DRY-CLEANING FLUIDS

Almost all dry-cleaning fluids belong to the following three groups:

1. Naphtha (called Stodard's fluid)
2. Carbon tet (tetrachloride)
3. Mixtures of both in various proportions.

Naphtha is inflammable and much cheaper than carbon tetrachloride. Carbon tet (tetrachloride) is *not* inflammable.

Mixtures of both in various proportions must contain 60% of carbon tet (tetrachloride) to be noninflammable.

Naphtha (called Stodard's fluid) is used by commercial dry-cleaners. Their so-called "spotters" will remove any spots which will not be removed by naphtha.

NONINFLAMMABLE CLEANING FLUID

Carbon Tetrachloride	3 gal.	Chloroform	1/2 pt.
Gasoline	2 gal.	Perfuming Oils	1 oz.
	$\left\{ \begin{array}{ll} \text{Oil of Bergamot} & 2 \text{ dr.} \\ \text{Oil of Rosemary} & 1 \text{ dr.} \\ \text{Oil of Cloves} & 1/2 \text{ dr.} \\ \text{Oil of Bitter Almonds} & 1 \text{ dr.} \end{array} \right\}$		

Mix thoroughly.

Directions for Use: Brush the fabric to be cleaned with a dry brush to remove dust, etc. Apply the cleaning fluid with sponge or soft cloth, rubbing well. Place a white cloth or clean white blotter under the fabric to absorb the excess of cleaning fluid. This effective cleaner will not injure delicate fabrics.

SCOURING AND CLEANSING EMULSIONS

	%		%
Carbon Tetrachloride or Other		Duponol G	2-4
Chlorinated Solvent	96-98		

Dissolve the Duponol G in the chlorinated solvent. This is a "soluble oil" type which disperses easily when poured into water while stirring. It should be noted that when carbon tetrachloride or other chlorinated solvent is emulsified, the solvent globules have a tendency to settle in an emulsion of low viscosity, even though the individual globules do not coalesce. If a stock emulsion has been standing for some time, it may be well to stir it.

Emulsions of this kind are especially suitable for scouring and cleansing, for example, removal of wax and grease spots from fabrics.

RUST REMOVER

	%	lb.		%	lb.
Potassium Oxalate	10	10	Water	80	80
Methocel	10	10			

Mix in a suitable container. Let stand 48 hours, with frequent stirring, until a clear jelly is obtained. This is usually filled into collapsible tubes.

This can be used as an aid in removing rust, ink, fruit, and other stains from fabrics, rugs, marble, tile, and porcelain.

Directions: Dampen the stain with warm water. Apply the rust remover paste and rub lightly into the stain. Let remain a few minutes, then rinse or sponge. For ink stains, fruit, and mildew, treat in the same manner then boil or pour boiling water through the stain.

PAINT REMOVER

	%		%
Benzol	51.0	Petroleum Naphtha	
Ethyl Alcohol	28.0	(Sp. Gr. 60° 0.730)	8.5
85-88% Ethyl Acetate	8.5	Petroleum Wax	
		(Paint Remover)	4.0

Melt the petroleum wax and pour into a mixture of the benzol and petroleum naphtha. Mix the ethyl acetate and alcohol and add the petroleum wax-benzol-naphtha solution, with constant stirring.

Directions for Use: For ordinary work, apply a liberal coating with a soft paint brush, working in one direction only. The thickness of the paint coat to be removed will determine number of applications required; in some cases two or three may be necessary.

This is an effective remover for paint, varnish, lacquer, enamel and shellac. Shake the mixture before using. It is POISONOUS and INFLAMMABLE. Do not use it near fire or flame. Put up in cans.

OLD-FINISH REMOVING LIQUID

	%		%
Paraffin	1.6	Commercial Grade	
Polystyrene*	1.0	Xylene (Xylol)	13.9
Methylene Chloride	83.5		

* Request a grade suitable for a solvent-type *paint* and *varnish* remover.

Dissolve the polystyrene in the xylene and add this solution to the methylene. Then add the melted paraffin wax to this mixture. AVOID OPEN FLAMES.

Apply to prepare used surfaces for refinishing by removing the old finish, varnish, shellac, wax film, etc., from woodwork, furniture, stairs, floors, etc.

Directions for Using: Spread the liquid on the surface and wipe off with a cloth.

INK-STAIN REMOVER*

Carbowax compound 4000 is an especially suitable vehicle for stain-removing agents, since it makes possible that the remover is made in stick form. The stick can be applied easily and economically and makes a convenient package. These sticks have been found satisfactory for removing ink stains from all colors of rayon, cotton, wool, and silk without affecting the color of the fabric. The sticks will be found useful for removing iodine, rust, coffee, and other stains as well.

Formula No. 1

	lb.		lb.
"Carbowax" Compound		Triethanolamine	21.5
4000	60.0	Oxalic Acid	18.5

Melt the Carbowax compound 4000, add the triethanolamine and oxalic acid, and stir until the acid crystals have disappeared.

Formula No. 2

	lb.		lb.
"Carbowax" Compound		Sodium Bisulfite	25
4000	70	"Carbitol"	6

Melt the Carbowax compound 4000, add the Carbitol, and stir in the sodium bisulfite which has been powdered very finely.

In each case, stir until fairly viscous creams, just thin enough to pour, are obtained. Then pour into molds or metal containers, stirring well before each pouring to assure uniform distribution of the ingredients.

VARIATIONS: If a slightly softer stick of Formula 2 is desired, replace 7 to 10 pounds of the Carbowax 4000 with Carbitol. Other stain removing ingredients can be used with Carbowax compound as the convenient and economical carrier.

* Courtesy of Carbide and Carbon Chemicals Co.

Directions for Use:

- (1) Lay the spotted fabric on a folded, clean cloth, with the soiled side of the fabric on the cloth. Using another small, clean cloth apply water to the spot with a daubing action until no more color from the ink spot can be removed to the undercloth.
- (2) Hold the stick of Formula No. 1 under hot water for an instant and DAUB the ink spot with the wet stick. This will release more color from the spot. Repeat this process until the spot is almost gone and no more color can be seen going from the spot to the folded cloth.
- (3) Hold stick of Formula No. 2 under hot water for an instant and DAUB the spot with the wet stick. Repeat several times, if necessary, until the spot disappears. Rinse WELL with water by daubing with a small cloth wet with water.
- (4) In removing ink stains from some white or light-colored rayons or silks, the blue color is removed but a deep pink spot may remain. This pink color can be lightened by repeating applications of stick No. 1 followed by stick No. 2, with a final thorough rinsing with water.

SUDSING DETERGENT POWDER

	%		%
Sulfated Coconut Oil		Sodium Chloride	1.5
Monoglyceride	32.0	Fluorescent Dye	
Anhydrous Sodium Sulphate	66.0	(Optical Bleach)	0.002

Sieving the mixture so as to mix the components intimately or use a mixing and sifting machine for large quantities. Package in cartons.

Removes dirt, hard-water film, etc. No water softener or soap is needed with this detergent powder.

WASHING PASTE

Paraffin Wax	4 lb.	Concentrated Ammonia	
Stearic Acid	8 oz.	(26°)	4 fl. oz.
White Soap Chips	2 lb.	Water	1½ gal.
Borax	¾ lb.	Light Mineral Oil*	8 fl. oz.
		Oil of Lemon Grass	1 fl. oz.

* This is a nonviscous oil such as is used in the manufacture of polishes, etc. No. 28 paraffin oil is very suitable for this purpose.

CAKE-FORM WASHING COMPOUND

Make as directed for the paste form, but use only $\frac{1}{2}$ gallon of water. Remove from the fire as before and, when it begins to thicken, pour into tins or trays. After cooling, cut up into cakes weighing about 4 ounces each.

Directions for Use: Where the clothes are to be boiled, use one quarter to one half of a box of the paste or cake. Dissolve half a cake of good laundry soap in about a gallon of water and add the compound. Fill the boiler about two-thirds full of water. When hot, add the dissolved soap and compound. It is well to rub a little soap on the most soiled parts before placing the clothes in the boiler; also, dip the clothes into cold water several times when boiling. Rinse the clothes in warm water and if not clean rub lightly with soap. If desired, it may be rinsed in cold water a second time, then blued, and dried as usual.

This preparation may be used to clean carpets and rugs, curtains, and draperies, as well as for washing woodwork and furniture.

For cleaning woodwork and furniture, use a warm solution, and then wipe dry with a soft cloth.

For carpets and rugs, apply a hot solution with sponge or scrubbing brush and wipe the lather with a clean cloth. Reclean if necessary.

Dissolve the soap and borax in water by heat. Add the ammonia to the solution. Melt the paraffin and stearic acid and add to the hot soap-borax-ammonia mixture. Remove from the fire and stir until it forms a smooth mixture; then add the light mineral oil slowly, with constant stirring; continue to stir until a perfect mixture is obtained.

Pack in four-ounce tin cans.

DETERGENT POWDER

	%		%
Sodium Tripolyphosphate	33.95	Sodium	
Tetrasodium Pyrophosphate	6.65	Carboxymethylcellulose	0.55
Disodium Hydrogen		Sodium	
Phosphate	9.45	Alkylarylsulfonate	18.62
Sodium Sulphate	14.57	Fatty Amide	
Sodium Carbonate		Condensates	2.50
(Soda Ash)	1.59	Fluorescent Dye	
Sodium Silicate		(Optical Bleach)	0.005
(1:3.25 Ratio)	4.12		

Mix intimately by sieving or, for larger quantities in a mixing and sifting machine. Package in cartons.

Directions for Use: Remove unusual stains from clothes before washing.

For woolens and fine fabrics: Wash and rinse carefully in lukewarm water.

General Directions: Fill the machine to water line and add enough powder to hold good suds during the washing.

For cleaning rugs and upholstery: Sponge with suds and wipe dry with an absorbent towel.

This is a modern washing powder that does a thorough cleaning job. It can also be used for cleaning linoleum, woodwork, and painted walls.

WASHING POWDER

	%		%
Anhydrous Soap Powder (95-99%)	67.5	Sodium Metasilicate	17.5
Sodium Chloride	1.0	Fluorescent Dye (Optical Bleach)	0.002
Tetrasodium Pyrophosphate	7.5		

Sieve the ingredients so as to mix them thoroughly. In larger quantities, a mixing and sifting machine makes this procedure economical. Package in cartons.

This is an efficient clothes washing detergent that makes clothes clean without being hard on hands.

WASHING, CLEANING, AND SCOURING POWDER

	lb.		lb.
Trisodium Phosphate	100	Sodium Bicarbonate	50
Soda Ash	50	Ammonium Chloride	10

Mix intimately by sieving or in a mixing and sifting machine.

For a soap-containing powder, add to the formula 25 to 50 pounds of good-quality soap powder.

For a nonsoapy product which will form suds when mixed with water, add 1 to 2 ounces of an alkylaryl sulfonate. This is sold under various trade names such as Naconnol NR, Solvadine, Virifoam, etc. This is used to increase the quantity of suds in washing compounds. It may be used for the same purpose in the proportion of $\frac{1}{2}$ to 1 ounce to each pound of soap-containing powders.

This washing powder evolves free ammonia when added to water. It washes clothes without rubbing, dissolving dirt quickly and does not injure delicate fabrics or affect sensitive skin. It is also an excellent general cleaner for woodwork, floors, tile, sinks, bath tubs, linoleum, windows, kitchen and dairy utensils, etc.

For laundry purposes add 1 heaping tablespoonful to a half boiler of water, also add a half bar of shaved up laundry soap. Soak clothes overnight or wet in cold water. Rub soap on soiled clothes, collars, sleeves, etc.; then boil for 10 to 15 minutes. Remove and rinse in warm or cold water. Do not boil colored clothes to avoid running of colors. To prevent shrinkage of woolen materials use lukewarm water.

For cleaning kitchen and dairy utensils, washing windows and cleaning unpainted floors, add 1 or 2 tablespoonfuls to a pail of hot water. For painted woodwork, etc., add 1 tablespoonful to a pail of warm water.

SUDSING DETERGENT POWDER

	%		%
Sodium Lauryl Sulfate	19.6	Sodium Metasilicate Pentahydrate	14.8
Tetrasodium Phosphate Anhydrous	12.8	Anhydrous Sodium Sulfate	15.7
Pyrophosphate	3.8	Fluorescent Dye (Optical Bleach)	0.002
Sodium Tripolyphosphate	33.3		

Directions for use: For wash-tub use, make heavy suds. Agitate clothes and rub stubborn spots. Rinse. For washing machines, for white clothes, fill the washer with the hottest water available; use cooler water for colors; add sufficient detergent powder to keep good suds. For automatic machines, use enough powder to maintain good suds during washing.

This sudsy detergent powder cleans clothes, dishes, linoleum, tile, rugs, bath fixtures, sinks, windows, stoves, farm and dairy utensils, etc.

SANITARY HOUSEHOLD CLEANER

	%		%
Oxycholesterin Absorption Base (Emolient)	1.0	Hydrated Sodium Sesquicarbonate	52.1
Sodium Soap	1.0	Partially Hydrated Trisodium Phosphate	42.7
Pine Oil	3.2	Green Fluorescent Dye	to suit

Mix the powdered soap, sesquicarbonate and phosphate intimately by passing through a sieve several times, mixing and sifting well after each sieving. For large lots, use a mixing and sifting machine. Then dissolve the emolient in the pine oil, warming if necessary, and spray the oily mixture evenly over the mixture of soap, sesquicarbonate and phosphate. Mix intimately once again by passing through a sieve several times. If desired, a small amount of green fluorescent dye can be dissolved with the emolient and pine oil prior to spraying on the mixture. Allow the batch to age overnight and hand pack in tin cans or glass jars.

Directions for use: For light work dissolve 1 tablespoonful in 1 gallon of warm water. This applies also to cleaning painted woodwork, walls, venetian blinds, rubber and composition floors.

For hard work of cleaning, dissolve 2 tablespoonfuls in 1 gallon of warm water. This stronger solution may be used for cleaning terrazo and wooden floors, kitchen equipment, outside work, rugs, upholstery, etc.

For rugs, fabrics, upholstery, sponge lightly but do not soak. Wipe with the weave, then opposite.

This efficient cleaner leaves the refreshing odor of pine oil. It can be used as a general cleaner around the home, kitchen, bathroom, for tile, painted walls, upholstery, rugs, linoleum, etc. Despite its effectiveness it is not hard on hands.

CLEANING CRYSTALS

	lb.		lb.
Trisodium Phosphate	1	Sodium Hyposulfite	3
Light Soda Ash	1		

Mix intimately by passing through a sieve several times, mixing and sifting well after each sieving. For large lots, use a mixing and sifting machine.

Directions for use:

For cleaning silks, clothing, upholstery, rugs, carpets, felt hats, painted and varnished woodwork, furniture, windows, mirrors, etc., dissolve 1 heaping teaspoonful in 1 gallon of lukewarm water.

For laundry, dissolve 2 tablespoonfuls in a tub of water, using soap as usual.

For dishwashing, use $\frac{1}{2}$ to 1 level teaspoonful to a dishpan of water.

For bath, use 1 tablespoonful to a tub of water. It softens the water and tends to prevent ringing of the tub.

For best effect in cleaning rugs, carpets, upholstery, dissolve 1 table-

spoonful of good white soap chips in 2 quarts of water by heat. Stir in 1 teaspoonful of cleaning crystals into the solution. Beat up with an egg beater to form a froth and use this froth for shampooing the fabrics.

These cleaning crystals remove iodine stains instantly.

DISH AND GLASS WASHING COMPOUND

High-Grade Sodium	Calcium Hypochlorite	7 lb.
Sesquicarbonate	35 lb.	

Mix the powders intimately by passing through a sieve several times mixing well after each sieving. For large lots, use a mixing and sifting machine.

This compound is used for washing dishes and drinking glasses in hotels, restaurants, and soda fountains. It is not only an effective cleaner but also contains a sterilizing agent which makes the dishes and glasses sanitary and prevents contagion. It is highly effective for cleaning dairy utensils, washing and cleaning milk bottles, and for use in the home.

Directions for use: Add a heaped tablespoonful of the compound to a gallon of water for washing and disinfecting dishes, glasses, etc.

CLEANING POWDER

	lb.		lb.
Powdered Borax	5	Soda Ash	5
Powdered Soap	20	Powdered Volcanic Ash	35

Mix intimately by sieving.

Volcanic ash makes the best abrasive for a product of this kind.

For cleaning kitchen utensils, sinks, bath tubs, etc., wet them and sift a little powder on. Then rub with a wet cloth and rinse with clean water.

For polishing metals, apply the powder on a wet cloth or sponge, rubbing well, and finish with a soft cloth.

For cleaning woodwork, add a tablespoonful to half a pail of water.

DETERGENT POWDER

	%		%
Sodium Silicate		Sodium	
(1:3.25)	5.18	Tripolyphosphate	13.72
Sodium Carbonate		Disodium Hydrogen	
(Soda Ash)	0.91	Phosphate	1.86
Tetrasodium		Sodium Sulphate	
Pyrophosphate	28.30	(Salt Cake)	15.10
		Sodium Chloride	0.52

	%		%
Sodium		Amide Condensates)	5.00
Carboxymethylcellulose	0.25	Sodium Alkylaryl	
Condensed Amine (Fatty		Sulfonate	25.05

Small amounts of blue dye, perfume, and fluorescent dye (optical bleach) may be added.

Mix intimately by sieving or in a mixing and sifting machine for larger quantities. Package in cartons.

This efficient detergent powder thoroughly cleans clothes, dishes, rugs, woodwork, linoleum, walls, etc. In washing machines, automatic washers or in dishpans this detergent does not harm the products to be washed or the hands.

For the automatic washer: Sort clothes, washing white clothes first. Use no more powder than is required to keep up good suds.

For washing machines: Sort the clothes and fill the machine to the water line with hot water, adding just enough powder to keep good suds. Wash white clothes first for about 15 minutes, follow with fast colors, using warm or moderately hot water, 5 to 10 minutes, and rinse in warm or cool water.

Woolens should be hand washed gently in lukewarm water. Avoid soaking, rubbing, or twisting. Linoleums, walls, woodwork, and glassware may be cleaned by washing with water in which a small amount of of the powder has been dissolved.

SELF-EMULSIFYING LAUNDRY WAX

	%		%
Japan Wax	80.6	10% Solution of	
Paraffin Wax	9.0	Caustic Soda	5.7
Duponol D Paste	4.7	Perfume	to suit

Mix the waxes, Duponol, and caustic soda solution together in a steam-jacketed vessel and stir until thoroughly homogeneous. Cease heating and stir occasionally until almost solid. Then pour into suitable molds to solidify.

A self-emulsifying wax of this type is useful in power or domestic laundry practice. When added to a boiling starch mixture for starching clothes, the ironing is greatly facilitated.

LIQUID COMPOUND STARCH

	%		%
Polivinyl Acetate	4.5	Water	94.4
Tricresyl Phosphate	1.1		

Both ingredients are normally insoluble in water. However, the polyvinyl acetate is sold as a 55 to 60% solids emulsion to which the tricresyl phosphate can be added and made into a stable emulsion by using a speed mixer with a high rate of shear. In small quantities, a hand rotary egg beater or electric household mixer will do the job. For larger commercial lots, an Eppenbach mixer, colloid mill, or homogenizer must be used. If a 55 to 60% solids polyvinyl acetate emulsion is used, 7.5% by weight should be substituted in the above formula and the amount of water should be cut down to 91.4%. Package in bottles.

Directions for use: Shake well before using. For light starching, use 1 part to 2 parts of water, while for heavy work use equal parts of starch and water. Although harmless to fabric or color, it should be used only about every seventh laundering; but avoid the use of too hot water when washing clothes. Any excess of starch made up can be used for the next-day wash.

This plastic starch helps extend the life of fabrics by coating the fibres, increasing their wearing qualities, staying crisp and fresh longer. It has no harmful effect on fabric or color.

HAND-CLEANER POWDER

	%		%
Hydrated Powdered Borax	76.0	Powdered Soda Tallow Soap	24.0

Mix intimately by passing through a sieve several times and stirring well after each sifting. For larger quantities, a mixing and sifting machine must be used. Put up in sifter-top cans.

Directions for use: Wet the hands, pour on hand cleaner powder, rub into a lather, and rinse.

It will remove grease, dirt, and grime from the hands.

HAND SOAP POWDER

Powdered Soap	1 lb.	Sodium Perborate	1½ oz.
Powdered Borax	12 oz.	Fine Corn Meal	½ lb.

Mix intimately by passing through a sieve several times, stirring well after each sifting.

If preferred, the corn meal may be replaced by 4 ounces of fine powdered pumice. The corn meal, however, is an excellent cleaner and leaves the skin soft and smooth. If a perfumed product is wanted, spray or sprinkle sufficient perfume oil of any desired odor over the powder dur-

ing the sifting and mixing process. Put up in sifter top cans similar to those used for talcum powder.

For use, sift on moistened hands, wash, and rub.

SOLVENT PASTE FOR GREASE, DIRT, ETC.

Formula No. 1

	%		%
Sodium Tallow Soap	7.0	Dolomitic Limestone	
Sodium Carbonate		(Abrasive)	48.8
(Soda Ash, Light)	1.7	Water	42.5

A small test batch of a similar but not identical product can be prepared as follows:

Formula No. 2

Sodium Tallow Soap	1 lb.	Dolomitic Limestone	
Sodium Carbonate		(Abrasive)	5 lb.
(Soda Ash)	3 oz.	Water	2 qt.

Mix intimately by sieving or in a mixing and sifting machine. Then add the water to the thoroughly mixed powders to obtain a paste of the proper consistency. A little more or less water than called for in the formula may be used, depending on the absorptive powers of the powdered ingredients used. Allow to age overnight and hand pack into wide-mouth metal cans or glass jars.

To use, place a small amount of paste in the hands after dipping them in water to wet. Rub thoroughly, rinse, and wipe. For other uses, apply with a damp cloth, rub lightly, and rinse off with another damp cloth.

This product may also have many uses around the home, e.g., for cleaning kitchen utensils, glassware, painted woodwork, tile, marble, bathroom, sinks, etc.

HECTOGRAPH-INK REMOVER CREAM*

This cream is effective for removing hectograph-ink stains from the skin. It is applied to the hands, rubbing well into the stains, then rinsed with water. When the hands are badly stained, remove the cream with cleansing tissue and use a second application. The user should be cautioned NOT TO WET THE HANDS BEFORE APPLYING THIS CREAM.

* Courtesy of Carbide and Carbon Chemicals Co.

	lb.		lb.
Carbowax 1000		Butyl Cellosolve	7½
Monostearate	8	Carbitol Solvent	7½
Triple-Presser Stearic Acid	16	Light-Colored Bentonite	6 to 7
Anhydrous Lanolin	3	Water	50
Terpineol	1/10	Perfume	½

- (1) Melt the Carbowax 1000 monostearate, stearic acid, and lanolin and add the terpeneol. Stir in the bentonite, butyl Cellosolve, and Carbitol solvent and bring the temperature to 60°C.
- (2) Heat the water to 60°C. and add it to (1) quickly, all at one time, stirring continuously. A paddle-type stirrer is preferred to prevent aeration of the cream.
- (3) Continue stirring until the cream cools to about 40°C. and then stir at intervals to about 30° to 32°C. Add the perfume at about 35°C. The cream becomes somewhat stiffer on standing. A better consistency is maintained if it is packaged at 30° to 32°C. than if it is allowed to stand overnight before packaging.

BLEACH FOR DELICATE FABRICS (Nylon, Silk, Wool, Rayon)

	%		%
Sodium Tetraphosphate	41.7	Sodium Sulfate	45.8
Sodium Perborate	12.5	Methyl Salicylate (Oil of Wintergreen)	to scent

Mix the dry ingredients intimately by hand sieving or, for larger quantities, use a mixing and sifting machine. Package in cartons.

In washing machines, tubs or hand washing, use 1 tablespoon of this bleach to 3 gallons of water at the time the soap is added. The ideal temperature for silk, rayon, or nylon is 90° to 100°F; while 90 to 95°F. (cool water preferable) is the ideal temperature for woolens. Add a small amount of vinegar to the rinse water. For cottons (white and fast colors), use hot water of 140°F. or higher.

This bleach is safe for nylon, silk, wool, rayon and washable colors. It is harmless for the skin, baby clothes, and all washable fabrics; softens water; makes and keeps clothes clean and fresh. It bleaches while washing and is economical.

BLEACH, DEODORANT, AND DISINFECTANT

Calcium Hypochlorite (Bleaching Powder)	15 lb.	Light Soda Ash Water	10 lb. 30 gal.
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Mix the calcium hypochlorite and the light soda ash separately, each with 15 gallons of water. Then pour these two solutions together. Let stand until the precipitate which forms settles out; then siphon or decant the clear solution for use.

If a high-grade calcium hypochlorite, which contains about 65% available chlorine, is used, the bleaching fluid will contain about 2.75% sodium hypochlorite.

With lower grades of calcium hypochlorite, weaker solutions will be obtained, the strength depending on the grade of bleaching powder used. Commercial calcium hypochlorites usually have 35 to 37% chlorine available. In the case of 35% available chlorine in the bleaching powder, the sodium hypochlorite content of the bleach will be about 1.5%. For a stronger solution, use less water.

This formula yields a product which is in demand all year round. It is also suitable for cleaning and sterilizing soft drink glasses and dishes in restaurants and hotels, cleaning and deodorizing refrigerators, dairy utensils, and many uses in the home.

SOLUBLE, LYSOL-TYPE CRESOL DISINFECTANT

Cresol Disinfectant*	1 gal.	Safrol	3 oz.
Pine Oil	2 oz.	Eucalyptol	1.4 oz.

Mix thoroughly and, after standing for a time, filter clear.

This is an effective disinfectant, antiseptic and deodorant. It may be used for cleaning wounds, for disinfecting linens, sinks, drains, garbage

* CRESOL DISINFECTANT

	lb.		lb.
Cresol	50	Caustic Potash	3
Oleic Acid	25	Warm Water	25

Dissolve the potash in the water. Pour slowly, with constant stirring, and heat gently while stirring, into the oleic acid until completely saponified. The saponification is complete when a little of the product will dissolve readily in warm water, without any oil drops floating on the surface. When the oleic acid is completely saponified, add the cresol gradually, constantly stirring the mixture until a clear solution is formed.

The oleic acid is the grade commonly sold as distilled red oil. This is a by-product of the candle-making industry, being separated from tallow and other fats in the process of making stearic acid.

cans, sick rooms, carpets, rugs, woodwork, and in personal hygiene. It is adapted for use in the home as well as in veterinary practice.

Directions for diluting: For washing wounds, cuts, scratches, etc., mix 2 teaspoonfuls with 1 pint of water. For washing linens, bedding, etc., add $2\frac{1}{2}$ tablespoonfuls to 1 gallon of water. Use the same strength for washing woodwork, etc., in the sickroom. For use in cleaning sinks, bath tubs, basins, toilets, etc., use $2\frac{1}{2}$ tablespoonfuls to 1 gallon of water. For personal hygiene, use 1 teaspoonful to 1 quart of water. It may be applied to soothe insect bites, poison ivy, and ringwork of the feet, dissolving 1 teaspoonful in 1 quart of water.

Caution: Preparations of this type must always be diluted with water according to directions before use. They are poisonous if taken internally, in which case a physician should be called. In the meantime give milk, raw egg whites, gruel or cornstarch paste, followed immediately by an emetic. If spilled on the skin, wash with water and apply alcohol or olive oil.

SOLUBLE CRESOL DISINFECTANTS

There are two distinct types of cresol disinfectant and antiseptic. One of these is the Creolin type, which forms a milky solution with water, and the other is the Lysol type, forming a clear solution with water. The difference is due to the different methods of preparation. Both contain practically the same ingredients, but in the first the cresol is added and saponified with the other ingredients, while in the second, first the soap base is formed and then the cresol is mixed with it. This slight change in technique makes all the difference in the two types of product.

CREOLIN-TYPE CRESOL DISINFECTANT

Formula No. 1

	lb.		lb.
Cresol	50	Caustic Potash	3
Oleic Acid*	25	Water	25

Dissolve the caustic potash in the water by heat. Mix the cresol and oleic acid. Pour the solution of caustic potash into the cresol mixture, stirring constantly, and continue to stir until perfectly combined.

This formula is recommended for small-scale production.

* Distilled red oil.

Formula No. 2

Cresylic Acid (Creosote Oil)	5 gal.	Caustic Soda Solution (18° Bé.)	7½ qt.
Light-Colored Rosin	5 lb.		

Dissolve the rosin in the creosote oil by gentle heat, first breaking up the rosin into small pieces. Do not use powdered rosin as this generally contains more or less talc to prevent caking. Stir in the caustic soda solution and boil gently for 2 hours, adding water from time to time to make up for that lost by evaporation. A mark may be made on the inside of the kettle to show the proper amount of water to be added.

The solution of caustic soda is made by dissolving the caustic soda in water until the strength of the solution shows 18° on a Baumé hydrometer for liquids heavier than water. The simplest method of making this is to first dissolve the caustic soda in water so as to make a very strong solution, then place the hydrometer into the solution and reduce with water until it shows the correct reading. Instead of using the hydrometer, a solution of approximately the same strength can be made by dissolving 12 pounds of caustic soda (76% strength, granulated) in 7 gallons of water. This solution will keep indefinitely if covered so as to prevent evaporation of the water.

This formula is preferred for large-scale production as it is generally cheaper than Formula No. 1.

PINE-OIL DISINFECTANT

Pine Oil	5½ lb.	Solution	1 lb. 2 oz.
Rosin (Grade "E")	2 lb.	Water	to make 1 gal.
25% Caustic Soda	3½ oz.		

Heat the pine oil and the rosin together in a covered enameled vessel until the rosin is dissolved. Cool to 176°F.; then add the caustic soda solution. Agitate violently for at least 10 minutes, preferably with a rotary egg beater. Then add sufficient water to make 1 gallon.

The 25% caustic soda solution is made by dissolving 1 pound of granulated caustic soda in 3 pints of water. Mix, dissolve, and use as needed. Any desired quantity may be made at a time, provided it is kept in closely stoppered containers so as to exclude the air.

This is an effective, fragrant antiseptic, disinfectant, and deodorant compound for use in the home or on the farm.

It makes a milky solution with water, is nonirritating, and may be used for cleaning wounds, as a deodorant and disinfectant for cleaning sinks,

drains, carpets, rugs, linens, woodwork, garbage cans, floors, etc. It is valuable for those who keep livestock and poultry as it helps reducing insect pests, such as fleas, lice, mites, etc.

Directions for diluting: For cleaning wounds, use 1 teaspoonful to 1 quart of water. As a disinfectant and deodorant for cleaning floors, woodwork, bedpans, linens, use 4 tablespoonfuls to 1 gallon of water. In housecleaning, use 4 tablespoonfuls to a pail of water. To deodorize sinks, toilets, garbage pails, etc., use 4 tablespoonfuls to 1 quart of water or pour a small amount into the sink, drain, etc. For dog's bath, use 2 to 4 tablespoonfuls to a tub of water. As disinfectant in kennel, stables, etc., use 2 tablespoonfuls to 1 quart of water as a spray.

DISINFECTANT GERMICIDE AND INSECTICIDE SPRAY

Straw Oil*	12½ gal.	Pine Oil	2 gal.
Kerosene	12½ gal.	Cedar-Leaf Oil	1 qt.
Cedarwood Oil	1½ gal.	Commercial Cresol	½ gal.

Mix the straw oil with the kerosene; then stir in the other ingredients, one at a time.

This compound is an effective general-purpose insecticide, germicide, disinfectant and dust layer.

It may be used as a spray against flies and mosquitoes, as a dust layer and germicide for floor mops and as a furniture dressing on a dusting cloth.

To use, spray wherever needed or apply with a broom mop to floors.

* This is a light, nonviscous mineral oil sold by refining companies for the manufacture of polishes, disinfectants, insecticides, etc.

ANTISEPTIC DEODORANT AND DISINFECTANT SPRAY

Thymol	80 gr.	Permanganate	8 gr.
Distilled Pine Oil	½ oz.	99% Isopropyl	
Lavender Oil	½ oz.	Alcohol	12 fl. oz.
Potassium		Water	to make 16 fl. oz.

Dissolve the thymol and oils in the isopropyl alcohol. Dissolve the potassium permanganate in 3 fluid ounces of water. Mix the solutions.

This agreeably scented diffusible spray is an effective deodorant, antiseptic, germicide and disinfectant. It is especially well adapted for use in the home and sickroom and is an excellent specialty for hospitals and physicians.

It is best used with an ordinary pump-type fly sprayer or it may be placed in saucers on hot radiators. In wash water, a tablespoonful or more may be used to 1 quart of water. This product will have an attractive lilac color.

BEDBUG, ROACH, ANT, AND MOTH INSECTICIDE

<i>Para</i> -dichlorobenzene	2 oz.	Sassafras Oil	1 oz.
Naphthalene	8 oz.	Cedar-Leaves Oil	1 oz.
Powdered Capsicum	3 oz.	Kerosene	to make 1 gal.
Ground Cocculus	2 oz.		

Mix in the order named and macerate or let stand for a week; then filter through paper.

This quick, effective and destructive exterminator of insects and vermin kills bedbugs, moths, roaches, ants, fleas, spiders, plant lice and caterpillars. For bed bugs, roaches and ants, squirt into crevices and cracks where the pests abound. Repeat until they have entirely disappeared. For moths in carpets, furniture, clothing, furs, etc., spray or sprinkle on lightly. For fleas, lice, etc., on dogs, horses, fowl, etc., add about 2 tablespoonfuls to 1 quart of warm soap suds and apply. Then wash off again with water and soap. Keep it from open fire or flame.

DDT

It is not a quick kill for insects. It is used in 5 to 10% solutions but is not satisfactory unless a quick kill is used with it like pyrethrum, Lethane, etc. The best solvent for DDT sprays is Ultrazine or Deo Base. Both are deodorized kerosine.

To make a powder, combine 5 to 10% with talc, starch, or Cerulose.*

* When ordering specify Cerulose to be used with DDT or Ultrazine.

ROACH-EXTERMINATOR POWDER

	lb.		lb.
Sodium Fluoride	4	Dried Powdered Sodium	
Pyrethum Powder	1	Sulfate	$\frac{3}{4}$
Dried Powdered		Kaolin	$1\frac{1}{2}$
Sodium Carbonate	$\frac{3}{4}$		

Mix intimately by sieving.

Directions for use: Apply with a bellows or insect-powder gun to all places infested by the roaches. This treatment should be repeated three times: about 4 days after the first application and again in about 2

weeks. Roaches hatching from eggs which are in inaccessible places will thus be exterminated.

Label: *Contents toxic*; must be used with care, following directions.

Antidote: Call physician. Induce vomiting with an emetic. Drink quantities of milk, lime water, and water until physician arrives.

FLY, MOSQUITO, MOTH, ETC., EXTERMINATOR

Formula No. 1

<i>Para</i> -dichlorobenzene	1 lb.	Methyl Salicylate	8 fl. oz.
Fresh Insect Powder or		Water-White Kerosene	1 gal.
Unground Flowers	½ lb.		

Macerate the insect powder in the kerosene for 3 or 4 days, with occasional agitation; then strain and add the *para*-dichlorobenzene and methyl salicylate. The last may be omitted if desired as it is used only to scent the mixture.

An even more effective product, though one which will have a lower flash point and is, therefore, more inflammable is made by substituting heavy naphtha for the kerosene. The effectiveness can also be increased, if the cost will permit, by increasing the quantity of insect powder to 1 pound.

The insect powder should be fresh, and the unground flowers will work as well as the powdered product in making this spray.

This spray kills flies, mosquitoes, moths, roaches, bedbugs, fleas, ants, and many other household pests.

For flies and mosquitoes, close doors and windows and spray upward until the room is filled with spray; for roaches, waterbugs, and ants, spray into all cracks where insects hide, spray them as they emerge; for bedbugs, take the bed apart and spray the cracks, etc., and the mattress. To destroy ant colonies, pour the liquid into the nest hole; in all other cases, spray with a sprayer, do not pour or sprinkle. *Keep from fire or flame.*

FLY, MOSQUITO, MOTH, ETC. EXTERMINATOR

Formula No. 2

<i>Para</i> -dichlorobenzene	1 lb.	Methyl Salicylate	8 fl. oz.
Fresh Insect Powder or		Water-White Kerosene	1 gal.
Unground Flowers	½ lb.	DDT	3-6%

Prepare by the same method as Formula No. 1, but add the *para*-dichlorobenzene together with the DDT.

Keep from fire or flame and observe the caution pertaining to the use of DDT.

MOTHPROOFING SOLUTION FOR WOOLENS

	%		%
Sodium Aluminum		Aluminum	
Silicofluoride	0.52 37 gr.	Chloride	0.25
or		Water	to make 100.00 1 gal.
Sodium			
Silicofluoride	0.50		
Mix and add:			
Oil of Cedar Leaves	1/4 oz.	Talc Powder	1 oz.

Mix and filter clear through paper.

Clean the woolen article thoroughly to remove dust and spots. Spray thoroughly until moist but not wet enough to drip. *Do not use* on furs, cottons, linens, silks and rayons.

MOTH PREVENTIVE AND EXTERMINATOR

Rotenone	1 oz.	Acetone	100 fl. oz.
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Mix and dissolve.

This safe, effective, odorless, and stainless product is entirely harmless on any fabric. It may be applied by spraying on clothing, upholstery, rugs, carpets, etc., or as a mothproofing rinse after washing woolens.

MOTHPROOFING (Moth Repellent)

Aluminum		Chlorothymol	1/4 oz.
Silicofluoride	1 1/2 oz.	Talcum	2 oz.
Mothproofing Cedar		Water	to make 1 gal.
Oil	1/2 oz.		

Filter clear; then add:

Propylene Glycol	4 oz.	Tween 20	1/4 oz.
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Package for market in one-pint and one-quart bottles.

All clothes must be thoroughly cleaned first. Clothes must be sprayed completely, for the smallest spot not sprayed may be attacked.

LONGER-WEAR NYLON SPRAY

	%		%
Medium-Viscosity Polystyrene*	3.2	Carbon Tetrachloride	96.8

Dissolve the polystyrene in the carbon tetrachloride and bottle.

Note on the label that it should be applied in a well-ventilated room or outdoors, since carbon tetrachloride fumes are poisonous.

Apply with an atomizer, applicator or soft cloth to dry, clean (washed) hose.

* Buy a polystyrene which is compatible with and completely soluble in carbon tetrachloride for use in a formulation to lengthen the life of nylon hose.

NONINFLAMMABLE METAL POLISH

Oleic Acid	1 gal.	Medium Silica	10 lb.
Stearic Acid	1 lb.	Infusorial Earth	
Concentrated Ammonia (26°)	1½ gal.	(Kieselguhr)	20 lb.
Water	10 gal.	Colodial Clay	10 lb.
		Denatured Alcohol	3 pt.

Melt the stearic acid in the oleic acid by gentle heat. Add the water (hot). Remove from the fire and, when cooled down a little, add the concentrated ammonia and denatured alcohol which have previously been mixed together.

Mix the silica, collodial clay, and infusorial earth, and sift this mixture slowly into the one previously made, stirring to prevent lumping. Continue to stir until the product thickens. Let stand overnight and stir thoroughly again. Fill into bottles or screw-top cans.

This quick and effective polish is harmless to the most highly finished surfaces. It will not injure painted, varnished, lacquered, or enamelled surfaces. It is nonexplosive and noninflammable, will not harden in the container, and is always ready for use. It may be used for automobiles, cleaning and polishing brass signs, stair rails, brass and nickel bar fixtures, or wherever a quick-acting, harmless metal polish is needed.

Apply with a soft cloth and rub until all tarnish is removed. Wipe off and polish with another soft cloth. Shake the container well before using.

BRASS AND METAL POLISH

Oleic Acid	1 gal.	Stearic Acid	1 lb.
Melt together; then add:			
Hot Water	10 gal.	Methyl Alcohol	12 gal.
10% Caustic Soda Solution†	1 pt.	Infusorial Earth (Kieselguhr)	20 lb.
Concentrated Ammonia (26°)	1½ pt.	Fine Floated Silica	10 lb.
		Pine Oil	to scent

Add the ammonia and caustic soda solution to 5 gallons of the hot water and stir this into the melted oleic and stearic acids until it forms a smooth emulsion. Then add the remaining 5 gallons of hot water, with constant stirring.

Mix the infusorial earth and silica and sift slowly into the mixture, with constant stirring. When completely mixed, add the methyl alcohol and pine oil.

Apply with a soft cloth and rub until all tarnish is removed. Wipe off and polish with another soft cloth. Shake the container before using.

† It is made by dissolving 1 ounce of granulated caustic soda in 9 fluid ounces of water.

SILVER CREAM POLISH

White Soap Chips	1 lb.	Light Mineral Oil	6 fl. oz.
Fine Floated Silica	1½ lb.	Water	1 gal.

Melt the soap chips in the water and add the oil, mixing well. Let stand until it begins to thicken a little; then sift in the silica, with constant stirring, continuing to stir until it is heavy enough to prevent the silica from settling out. It cannot be poured into jars, for at pouring consistency it is too thin to hold the powder in permanent suspension. The soap serves both as a cleaner and a carrier for the abrasive. The mineral oil is used to prevent too rapid drying out of the product.

Avoid beating or too rapid stirring while making as this tends to form froth or suds on top of the mixture. Leave the lids off the jars until the mixture is entirely cold.

Apply with a soft cloth, rubbing well. Let partially dry and then polish with chamois or flannel. Dip decorated pieces in clean hot water after polishing, then rub again.

COPPER, STAINLESS-STEEL, AND BRASS CLEANER

Formula No. 1

	%		%
90% Phosphoric Acid	22.9	Finely Ground Silica	28.5
20% Hydrochloric Acid	0.6	Water	46.8
Fine Powdered Methyl Cellulose	1.2	Synthetic Methyl Salicylate	to scent

Formula No. 2

90% Phosphoric Acid		Methyl Cellulose	2 oz.
Technical Grade	1/2 pt.	Finely Ground Silica	2 1/2 lb.
20% Hydrochloric Acid		Water	2 qt.
Technical Grade	4 fl. oz.		

This formula will give you a trial batch of a little less than 10 pounds. In large-scale production, Formula No. 1 weight formula given above in which all ingredients are much easier to work with.

No heat is required for the preparation of this product. Simply dissolve the methyl cellulose. Then slowly add the phosphoric acid, with gentle stirring, to dissipate some of the heat which will be formed. After all of the phosphoric acid has been added, stir in the hydrochloric acid. Finally, sift in the finely ground silica slowly, with agitation. Let stand for 15 minutes, then agitate rapidly for 5 minutes, repeating this several times. This gives a better mixture than continuous stirring. After standing for at least 1 day, stir the batch again before filling in bottles with plastic caps.

The vessel used should be of earthenware or glass. Do not use a metallic vessel for preparing this formula. The agitating required for small batches can be supplied by the use of an ordinary household rotary eggbeater or electric household mixer. For larger commercial lots, a portable power mixer must be used.

Shake well before using. Wipe on the dry, cool surface with a paper napkin, cloth, or small sponge. Rinse off quickly and wipe dry. This cleaner polishes and removes burns and tarnish quickly from brass, stainless steel, cookware, and copper bottoms. To polish ornamental copper and brass articles, wipe on with a soft cloth and rub slightly with a dry cloth long enough to obtain a lustrous effect. Do not use on lacquered surfaces.

ALUMINUM CLEANER AND POLISH

Trisodium Phosphate	2 oz.	Silicate of Soda	½ pt.
Finest Tripoli	1 lb.	(Water Glass)	
Water	6 pt.		

Dissolve the trisodium phosphate in the water, and sift in the tripoli. Add the silicate of soda. Keep well agitated when bottling to insure getting an equal amount of the tripoli into each bottle.

Shake the bottle thoroughly before use. Moisten a cloth with the liquid and go over the aluminum, rubbing with straight strokes—never with a circular motion. Rub up to a finish with a clean dry cloth.

This product is a practical and effective aluminum cleaner and polish. It is absolutely harmless to the metal and helps to remove tarnish and leaves the surface bright and clean.

AUTO POLISH AND CLEANER

	%		%
Glycerol	25.0	(Perfume)	Trace
Mineral Oil	9.9	Pulverized Feldspar	
Triethanolamine		(Abrasive) *	11.3
Oleate	0.9	Water	52.9
Amyl Acetate			

To prepare a product similar but not identical with the above polish cleaner, dissolve 1 part of triethanolamine oleate (or any other emulsifying agent, such as a soft soap) in 52 parts of water. Then slowly add 10 parts of mineral oil, with constant agitation, after which slowly add 25 parts of glycerol with continual stirring. Sift in the pulverized abrasive slowly with agitation (11½ parts), then add ½ part of pine oil as a perfume. Stir the batch slowly for 5 minutes, allow to stand for at least 1 day, then stir again for at least 15 minutes; allow to stand for 1 hour before filling. Package in cans or bottles.

The surface to be cleaned should be made free of dust. After thoroughly shaking the bottle, apply with a small clean cloth and rub until the film of dirt has been loosened. After allowing the polish to dry a little, wipe off and polish with a clean dry cloth. Should a brighter polish be desired, repeat the procedure.

Refrain from using on the car while hot or in the sun. The polish cleaner should be warmed a little before applying in freezing weather. Shake well before using.

* Should be a *fine* abrasive for auto polish.

This is an ideal auto polish and cleaner. Adapted to all types of finishes as well as for use on glass and chromium. It freshens the lustre and color.

AUTOMOBILE-BODY POLISH AND CLEANER

Light Mineral Oil	6 pt.	Glycerin	6 fl. oz.
Blown Castor Oil	2½ pt.	Karaya Gum	2 oz.
Heavy Naphtha	1 gal.	Water	2¼ gal.
Concentrated Ammonia (26°)	5 fl. oz.	Infusorial Earth (Kieselguhr)	2½ lb.

Soak the karaya gum in 1½ gallons of water for 12 hours, with occasional stirring. Mix the concentrated ammonia with the remainder of the water. Add this ammonia solution slowly to the blown castor oil and agitate rapidly for 5 minutes. Slowly, add the light mineral oil with constant agitation, and when this is all in, run in the gum solution in the same way. Then add the heavy naphtha in the same manner. Add the glycerin and mix well. Sift in the infusorial earth slowly, with the agitator running. Let stand for 15 minutes; then agitate rapidly for 5 minutes, repeating this several times. This gives a better emulsion than long, continued agitation.

Small lots may be made with a large-sized egg beater, such as used by hotels. On a large scale, use a power-driven agitator.

The mineral oil used is the grade commonly sold for the manufacture of polishes and may be either a white or light-yellow nonviscous oil. It can be secured from the sales offices of any of the large refining companies. Heavy naphtha is available from the same source and is also sold by most paint stores as a turpentine substitute.

Shake thoroughly before using. Apply with a soft cloth moistened (not saturated) with the polish, rubbing briskly until a fine sheen is obtained.

OIL POLISHES

Any of the following oil polishes can be used on furniture, woodwork, and automobiles. As emulsions, they clean and polish the surface in one operation. Following application, all these polishes can be rubbed dry to give a glossy finish on a varnished or lacquered surface.

In the following three formulas, proportions given are by weight.

	<i>Formula</i> <i>No. 1</i>	<i>Formula</i> <i>No. 2</i>	<i>Formula</i> <i>No. 3</i>
Light Mineral Oil	48.0	48.0	40
50% Sulfonated Castor Oil	16.0	16.0	—
Boiled Linseed Oil	—	—	8
Oleic Acid	6.6	6.6	4
Monoethanolamine	0.5	—	—
Morpholine	—	0.6	1.0
Water	60.0	60.0	60.0

The addition of 0.07 to 1.00 part by weight of a 10% aqueous solution of Cellosize hydroxyethyl cellulose WSLH to these emulsions assures stability over a longer period of time.

When these polishes are to be used on automobile or other lacquered surfaces, a small amount of a fine abrasive* is frequently added as an ingredient that cleans by friction.

Dissolve the oleic acid in the oils and stir in the amine. Continue stirring for about 5 minutes. If the mixture is not clear, add oleic acid a little at a time until clarity is attained. Add the oil solution to the water with vigorous stirring to form a creamy, stable emulsion.

The clear oil solution can be marketed with directions to mix it with an equal amount of water before use, pointing out that it can be stored as an oil to be mixed with water when desired.

* Almost any furniture polish can be modified to produce an automobile polish simply by adding an abrasive such as tripoli as an ingredient that cleans by friction. However, the same product should not be used for polishing furniture and automobiles, because the finishes and the type of soil encountered in the two applications are not the same. Soil on an automobile is much heavier and is quite different from that on furniture; that is why an abrasive is necessary in an automobile polish. Even soft abrasives have no real justification in furniture polish. While some abrasives are so soft that they usually do not scratch the finish, they may form deposits in the carving of the furniture, from which they may be removed only with difficulty.

WAX POLISHES

Wax-polish emulsions require more rubbing than oil-polish emulsions, but produce a harder, high-luster finish. These polishes are cleansers and polishers combined and leave a bright, hard film. They are applied by rubbing well over the surface to remove dirt and streaks and then polishing with a dry cloth. The wax mixture usually contains a hard

wax, such as carnauba, and a soft wax, such as paraffin or beeswax, which acts as a plasticizer. The use of naphtha in a wax polish allows faster application without leaving a tacky film. The morpholine emulsion films become water-resistant several hours after application and will stand up under constant exposure to water just as long as a solvent-type wax polish. The liquid-cream wax polish is more easily applied than the wax paste polish and does not require as hard buffing to produce a high gloss. The liquid wax polish makes an excellent shoe cream and can be used with addition of nigrosine for black shoes, or, with addition of other suitable dyes, for colored shoes.

The amount of each ingredient of the following ten wax polishes is given in pounds.

WAX POLISHES
(Paste)

	<i>Formula</i> <i>No. 1</i>	<i>Formula</i> <i>No. 2</i>	<i>Formula</i> <i>No. 3</i>
Carnauba Wax	30.0	30.0	30.0
Beeswax	30.0	30.0	30.0
Naphtha	50.0	50.0	50.0
Triethanolamine	4.3	—	—
Monoethanolamine	—	1.9	—
Morpholine	—	—	2.6
Stearic Acid	8.0	8.0	8.0
Water	65.0	65.0	65.0

LIQUID CREAM WAX POLISHES

	<i>Formula</i> <i>No. 1</i>	<i>Formula</i> <i>No. 2</i>	<i>Formula</i> <i>No. 3</i>	<i>Formula</i> <i>No. 4</i>
Carnauba Wax	12.0	12.0	14.0	12.0
Beeswax	6.0	6.0	4.0	6.0
Naphtha	70.0	70.0	25.0	70.0
Triethanolamine	4.8	—	—	—
Monoethanolamine	—	2.1	2.0	—
Morpholine	—	—	—	3.0
Stearic Acid	8.0	8.0	8.0	8.0
Water	180.0	180.0	240.0	180.0

AUTOMOBILE POLISHES*

	<i>Formula No. 1</i>	<i>Formula No. 2</i>	<i>Formula No. 3</i>
Carnauba Wax	9.0	9.0	9.0
Beeswax	8.0	8.0	8.0
Naphtha	75.0	75.0	75.0
Triethanolamine	2.7	—	—
Moneoethanolamine	—	1.2	—
Morpholine	—	—	1.7
Stearic Acid	7.0	7.0	7.0
Water	75.0	75.0	75.0

A steam or hot water jacketed kettle is preferred for making wax polishes, as a uniform temperature must be maintained to prevent caking of the wax along the sides of the kettle and to avoid discoloration by overheating the wax. A paddle-type, hand-operated stirrer or a low-speed, large-bladed propeller is also suggested for successful operation. Since morpholine has a flash point of 100°F., it should not be added to the mixture in the presence of open flames. If the wax is melted by means of a gas burner, the gas should be turned off during the addition of the morpholine.

Melt the waxes and stearic acid, add the amine, and maintain the temperature at about 90°C. Add the naphtha slowly and stir until a clear solution is obtained and the temperature is 90° to 95°C. AVOID THE USE OF OPEN FLAMES.

The method of adding the abrasive depends on the type used. An oil-absorbing abrasive, such as tripoli, should be well mixed with the hot naphtha solution of waxes just before the water is added. An abrasive that absorbs water, such as bentonite, is best stirred into the finished emulsion.

Heat the water to boiling, add it to the naphtha solution, and stir vigorously until a good emulsion is obtained. Continue stirring slowly until the emulsion has cooled to room temperature.

The proportions of waxes can be changed as desired, depending on the ease of polishing required and the hardness of the final film. A high-melting hydrocarbon wax can be used in place of all or part of the beeswax with good results. When the primary use of the automobile polish

* About 25 pounds of water-absorbing abrasive, such as bentonite, can be added to produce a paste polish; 60 pounds of an oil-absorbing abrasive such as tripoli makes a liquid polish.

is for polishing, rather than as a cleaning and polishing combination, it will be more satisfactory without an abrasive.

TRIETHANOLAMINE RUBLESS POLISH

This polish produces a glossy film that can be readily reemulsified or removed with water. A rubless floor polish prepared in this manner should give a clear, bright film when applied to linoleum, mastic, hardwood, and other floor surfaces. The addition of dispersed shellac or casein improves its spreading and flow-out properties.

	lb.		lb.
Carnauba Wax No. 1	40.0	Borax	3
Oleic Acid	4.5	Water	240
Triethanolamine	6.6		

It is essential that a good grade of carnauba wax is used and that the following directions are followed closely.

A steam or hot water jacketed kettle is preferred to maintain a uniform temperature and to prevent overheating and caking of the wax along the sides of the kettle. A paddle-type, hand-operated stirrer or slow speed, large-bladed propeller is recommended for successful operation.

Melt the wax and oleic acid, stirring occasionally to break up the wax lumps. Bring the temperature to 95°C. Add the triethanolamine slowly, stirring constantly until the mixture becomes clear. Dissolve the borax in 6 pounds of boiling water; pour this solution into the wax mixture, stirring until a clear, viscous mixture is obtained. Add the remaining boiling water to the mixture slowly, with steady stirring, a small portion at a time. Each portion of water should be thoroughly incorporated and the stirring continued until the mixture returns to a smooth, even consistency before the next addition is made.

The mixture will become more viscous when the water is first added and then becomes thin again. When about one half to two thirds of the water has been added and the mixture becomes water thin, the rest of the boiling water can be added slowly, but continuously, with steady stirring. If the mixture becomes creamy at any time, the water is being added too rapidly, and is not being thoroughly incorporated before the next addition. The final polish should be light colored and translucent, less opaque than milk.

The best results are obtained by using all of the water at boiling temperature. However, if more convenient, only about two thirds of

the water in the formula need be heated to boiling. The rest of the water may be at room temperature when added, with constant stirring, to the hot polish. This final dilution with cold water may be made at any time.

The polish is allowed to cool with occasional stirring, covering between stirrings to prevent crusting or graining on top. If cold water can be run through the jacketed kettle, the cooling can be accomplished more quickly.

Make a dispersion of bleached, dewaxed shellac or casein and add 2 gallons of this resin dispersion for each 10 gallons of polish.

WATER-RESISTANT RUBLESS POLISH

This is a translucent solution if prepared as directed. When spread evenly over a surface and allowed to evaporate, it dries to a hard film of high brilliance. The water resistance of the film increases for several hours after application and finally the coating is unaffected by water.

	lb.		lb.
Carnauba Wax*	40	Morpholine	5
Oleic Acid	8	Water	240

For successful operation in making a rubless polish, a steam-jacketed kettle and a hand-operated paddle or slow-speed, large-bladed propeller are recommended. The wax should not be allowed to cake around the sides of the kettle at any time.

Melt the wax in the oleic acid, stirring occasionally to break up the lumps. Bring the temperature to 95°C. and stir until well mixed. Add the morpholine and continue stirring until the whole mixture becomes clear. As the flash point of morpholine is 100°F. this addition should not be made in the presence of open flames. If the wax is melted by means of a gas burner, the gas should be turned off during the addition of the morpholine.

Add about 20 pounds of the water, which has been heated to the boiling point and continue stirring until a clear, viscous mixture is obtained. Then add the remainder of the boiling water, a small amount at a time, with steady stirring. Each portion should be well incorporated before another addition is made. The mixture becomes increasingly viscous and should be of the appearance of petrolatum when about one half of the water has been added. After this stage has been reached,

* It is essential that a good grade of light-colored carnauba wax is used.

the mixture begins to thin out. When about two thirds of the water has been added and the mixture has become definitely thinned, the remaining water can be added slowly, but continuously, with constant stirring. The polish should be covered and stirred at intervals until cool to prevent caking on the top. A resin dispersion improves the spreading and flow-out of the polish.

SPOT-RESISTANT RUBLESS POLISH

A triethanolamine polish made with a small amount of potassium hydroxide has been found to produce a film more water resistant than the film of a polish made with borax, but not so resistant as films of the morpholine polish described.

	lb.		lb.
Carnauba Wax No. 1	40	85% Potassium	
Triethanolamine	4	Hydroxide	1/2
Oleic Acid	8	Water	240

A steam or hot water jacketed kettle and a paddle-type, hand-operated stirrer or slow-speed large-bladed propeller are preferred for successful operation. The wax should not be allowed to cake around the sides of the kettle at any time.

Melt the carnauba wax and the oleic acid, stirring occasionally to break up the wax lumps, and bring the temperature to 95°C. Dissolve the potassium hydroxide in an equal weight of water, add this hot solution and the triethanolamine to the melted wax mixture, and stir until the mixture becomes clear. Heat the remaining water to boiling and pour it quickly into the wax mixture, all at one time. Stir continuously until the wax mixture is entirely dispersed in the water.

A shellac dispersion (see Index) can be added if desired.

Rubless floor polishes whose films are resistant to water spotting but less resistant to washing with soap and water than a morpholine wax polish can be made with combinations of less costly ingredients (amines).

Formula	Ingredients are given in pounds			
	No. 1	No. 2	No. 3	No. 4
Carnauba Wax No. 1	40	40.0	40.0	40
Oleic Acid	8	8.0	8.0	8
Morpholine	2	2.0	1.5	—
Triethanolamine	3	—	1.0	3

Monoethanolamine	—	1.5	1.0	1
Water	240	240.0	240.0	240

Use the same method as listed previously under Water-Resistant Rubless Polish.

NATURAL-RESIN DISPERSIONS

The addition of a resin dispersion increases the spreading and flow-out of rubless floor polishes and improves the smoothness of the dried polish film. Shellac is preferred with the triethanolamine rubless polish, while Manila loba B resin dispersion produces better results in the morpholine rubless polish. Stirring 1 to 3% of Triton surface active agent W-30 into the completed polish after it has cooled improves the flow-out or film smoothness. This addition is in lieu of the shellac or casein dispersions. A casein dispersion can be used with any of the rubless polishes and probably improves the smoothness of the polish film more than either a shellac or Manila loba resin dispersion. However, the water-resistance of the films is noticeably reduced by the casein dispersion, while neither the shellac nor the Manila loba resin dispersion affects this property. Excellent leather polishes may be produced with any of the rubless polishes by incorporating the casein dispersion.

MANILA LOBA RESIN DISPERSION

	lb.		lb.
Manila Loba B Resin		28% Ammonia	1.2
Powder	3.5	Water	32.0

Mix the powdered Manila loba B resin with the ammonia. Stir in about 10 pounds of the water, heated to about 60°C. This produces a gummy mass, which is allowed to stand for several hours or overnight. Then add about 10 pounds more water, heated to 70°C and stir until a uniform mixture is obtained. Heat the mixture to about 60°C, with constant stirring, to assist in getting a smooth dispersion. Stir in the rest of the water.

If the dispersion is not clear at any time, stir in more ammonia, a little at a time, until clarity is obtained. If a small amount of resin remains suspended, it should be removed by filtering the dispersion through a cloth. The clear, filtered dispersion is allowed to cool and can then be added to the cold polish at any time. About 1 gallon of resin dispersion to 5 gallons of polish produces the desired results. The proportions given

make sufficient resin dispersion for the amount of polish produced by any of the rubless polish formulas in this chapter.

SHELLAC DISPERSION

	lb.		lb.
Bleached, Dewaxed		28% Ammonia	$\frac{1}{2}$
Shellac	31½	Water	32

Add the ammonia and about one half of the water to the fresh shellac and warm, with constant stirring, until solution is complete. The shellac may become difficult to disperse if it is kept too long, while Manila loba B resin improves with age in this respect.

Add the rest of the water. The solution should be clear. More ammonia should be added if it is not clear. Filter, if necessary, cool, and add to the cold polish. About 2 gallons of the shellac dispersion can be added for each 10 gallons of polish.

CASEIN DISPERSION*

	lb.		lb.
(Casein) Lactic Acid	3.50	Phenol	0.16
28% Ammonia	3.35	Water	32.00

Soak the casein in one half of the water for several hours or overnight. Add the ammonia to the rest of the water, and stir this solution into the soaked casein. Heat with constant stirring, to about 60°C. and continue stirring at this temperature until a smooth mixture is obtained. Add 0.16 pound ($2\frac{1}{2}$ ounces) of phenol which acts as a preservative.

The dispersion will be slightly viscous but will become thinner as it stands. It should be aged for at least a week before it is added to the polish, unless a slightly viscous polish is desired. If the polish is too viscous when the aged casein dispersion is added, 30 pounds of water can be used to thin it and the completed polish will contain about 13% total solids. This is well within the range of most of the commercial rubless polishes, especially where the actual carnauba wax content is as high as in the suggested formulas.

The casein dispersion is easily made and keeps indefinitely when a preservative is present. Only as much ammonia as necessary to disperse the casein should be used, as an excess will increase the viscosity of the dispersion.

* Courtesy of Carbide and Carbon Chemicals Co.

LIQUID AUTOMOBILE WAX

	%		%
Carnauba Wax	1.1	Petroleum Solvent (Lower-	
High-Melting Paraffin		Range Stoddard	
Wax	2.7	Solvent)	95.9
Silicone*	0.3		

Dissolve the waxes and silicone in the petroleum solvent at about 140° F. or higher. *Do not use an open flame*; an enclosed electric hot plate is fine for this purpose. Then cool fairly rapidly, with good agitation, to bring down a fine precipitate of the wax. The silicone remains in solution. Allow to stand overnight; then package in cans or bottles, stirring all the while to get the same amount of wax in each container. For small quantities, an ordinary hand rotary egg beater or electric household mixer will do the necessary job. For larger commercial lots, an Eppenbach mixer, colloid mill or homogenizer, or a portable power mixer must be used.

Spread on and, when the car is thoroughly dry, wipe.

This modern liquid wax keeps the new look of automobiles, brings back the brilliance to older finishes, livens the color, leaves a high but tough finish, with minimum effort.

* For use in a wax-silicone-petroleum solvent auto polish.

AUTOMOBILE ANTIFREEZE MIXTURE
(NONRUSTING)

99.5% Methanol*	93.0% by vol.	Borax Decahydrate	
Water	6.5% by vol.	Powder**	1.3 g. 100 ml.†

Dissolve the borax in the water by heating and add to the methanol, with stirring. Allow to stand overnight. Color with an alcohol-soluble purple dye. Put up in cans holding 1 quart, 1 gallon, etc.

Directions for Use: For winter, clean the cooling system after draining. For a ten-quart radiator, use 1 quart of the mixture in the water for 20°F. temperature, 2 quarts for 10°F., 3 quarts for 0°F., and 4 quarts at -30°F.; for other-capacity radiators use this mixture in proportion.

For summer: Use 10% of this mixture in water. Use the same strength in new and used cars.

* A purple dye should be used for a methanol type antifreeze.

** Suitable for use as a corrosion inhibitor in a methanol antifreeze.

† Approximately 1 lb. in 10 gal.

As this mixture is inflammable, it should not be used near fire unless it has been mixed with water; do not spill it on the auto as it may injure the finish. Avoid inhaling the vapors as it is harmful. If swallowed, an antidote should be given at once. Give a tablespoonful of table salt in a glass of water and repeat until the fluid rejected from the stomach is clear; then follow with two teaspoonfuls of sodium bicarbonate (baking soda) in a glass of water. Keep the patient reclined and warm. Exclude light from the eyes. Call a physician. Apply water freely for at least 15 minutes if splashed in the eyes.

NORUBBING WAX FOR FLOORS, LINOLEUM, ETC.

<i>10-lb. Batch</i>		<i>100 lb. Batch</i>	
Borax	1 oz.	Borax	10 oz.
Oleic Acid	1 $\frac{1}{3}$ oz.	Oleic Acid	13 oz.
Triethanolamine	2 oz.	Triethanolamine	1 $\frac{1}{4}$ lb.
Carnauba Wax No. 1	3 oz.	Carnauba Wax No. 1	2 lb.
Oxidized Microcrystal- line Wax	13 oz.	Oxidized Microcrystal- line Wax	8 lb.
Pine Oil	20 drops	Pine Oil	1 oz.
Water	1 gal.	Water	10 $\frac{1}{2}$ gal.

Melt the wax and add the oleic acid, maintaining the temperature at 190°F. Add the triethanolamine, stirring constantly to form a clear solution. Dissolve the borax in about $\frac{1}{2}$ pint of boiling water if preparing the ten-pound batch, or 1 gallon of boiling water if preparing the hundred-pound batch and add to the solution to form a clear jelly-like mass. Boil the remaining water and add slowly, with constant stirring. Allow the temperature to drop but stir constantly. When the temperature drops to 100°F., add the pine oil, mixing it thoroughly into the batch. Allow to cool to room temperature and age overnight. The following day, mix thoroughly and bottle in cans or glass containers.

This can be used for wooden floors, linoleum, rubber tile, asphalt tile, cork tile, and terazzo composition. Shake well before using. Thoroughly clean surface to be waxed, removing all traces of old wax, dirt, oil, etc. Allow to dry thoroughly. Apply no rubbing wax thinly and smoothly with a dry, clean cloth. It will be required for it to dry to a bright finish in 15–20 minutes. Do not rub in or patch while drying. To get the lasting wax lustre, run clean dry cloth lightly over finished surface when dry. A second coat applied after the first coat if thoroughly dried will increase the lustre and wearing quality. **KEEP FROM FREEZING.** If the wax thickens, add warm water and shake well. Non-inflammable.

DRY, LUSTROUS FLOOR POLISH

	%		%
Carnauba Wax	13.2	Shellac	2.0
Duponol G	2.0	28% Ammonia	0.3
Borax	1.0	Water	81.5

Melt together in a steam-jacketed vessel the carnauba wax and Duponol G. While stirring, add the borax, dissolved in 1% of the boiling water, and stir until homogenous. Then add slowly 70.5% of the boiling water, while stirring vigorously. After a homogenous emulsion is formed, turn off the steam and stir slowly until cooled to room temperature.

In a separate vessel dissolve the shellac by heating in the remaining water (10%), containing the ammonia. After the shellac has completely dissolved, cool the solution to room temperature and stir it into the wax emulsion.

When applied to a clean, smooth surface, this emulsion will deposit a film of wax which requires a minimum amount of rubbing to produce a lustrous film. The shellac is added to make the film less slippery.

Polishes made according to this formulation have somewhat greater resistance to water spotting than those prepared with fatty acid soap emulsifying agents. By making small variations in the carnauba wax content, polishes are obtained which are suitable for linoleum.

LIQUID WAX FLOOR DRESSING

Yellow Carnauba Wax		Turpentine	1 qt.
No. 1	1 lb.	Kerosene	1 pt.
Yellow Ceresine Wax	2 lb.	Water	2 gal.
Good-Quality Yellow Laundry Soap	6 oz.		

Cut the soap small or use good soap chips and put into the water with the waxes. Cook until entirely dissolved. Remove from the fire, add the turpentine and kerosene, and stir until it begins to thicken; then pour into containers. For a thinner product, add more water. Up to 4 gallons of water may be used in this formula, but when this is done, there is a tendency for a mixture to separate on standing.

Carnauba wax No. 3 may be used instead of No. 1. It is cheaper, but does not give so good a product.

Oil of cedar leaf, or pine oil, or a mixture of the two may be used to scent the product.

Directions for use: Clean the floor and dry thoroughly. Apply the

dressing with a cloth or brush and after letting stand for a little time, polish in the usual manner with a cloth or floor polishing brush. Shake before using.

NAPHTHA FLOOR CLEANER*

This is an effective detergent for hardwood floors that are to be re-finished. The formula will carry 2 pounds of water and remain clear. It can also be mixed with an equal volume of water, when ready for use, to make an emulsion for cleaning metal parts.

	lb.		lb.
Tergitol Wetting Agent 7	4	Nacconol Detergent NRSF	1
		Cleaner's Naphtha	95

AVOID OPEN FLAMES WHEN HANDLING OR USING NAPHTHA CLEANERS

Mix the Tergitol and Nacconol and stir until the Nacconol is dissolved and a clear gel is obtained. Mix the gel with sufficient naphtha to produce a solution. This can be stored as a concentrate or the remainder of the naphtha may be added immediately.

* Courtesy of Carbide and Carbon Chemicals Co.

SELF-POLISHING LIQUID FLOOR WAX

Yellow Carnauba Wax No. 1	13 lb. 3 oz.	Water	11½ gal.
Oleic Acid	1 pt. 9 fl. oz.	Orange Shellac Concentrated	2 lb. 3 oz.
Triethanolamine	1 pt. 12 fl. oz.	Ammonia (26°)	5¾ fl. oz.
Borax	1 lb.		

Melt the wax and oleic acid, keeping the temperature not over 194°F. Add the triethanolamine slowly, with constant stirring. When the solution is clear, forming a semitransparent paste, add the borax, which has been dissolved in 1 gallon of boiling water, and continue to stir until a clear paste soap is formed.

Then run in the remainder of the water, boiling, with constant stirring.

Dissolve the shellac in 2 gallons of additional water, to which the concentrated ammonia has been added, by heating until the shellac dissolves entirely. When the wax mixture and the shellac solution are both cold, stir the shellac solution into the wax mixture. The purpose of the shellac in self-shining floor waxes is to prevent them from being too slippery.

It should be remembered that in this formula 2 gallons of additional water (in excess of the $11\frac{1}{2}$ gallons specified in the formula) are used in making the shellac solution. Since much of the quality of any self-shining floor wax depends on the method of making, the process of making should be carefully followed.

Directions for use: Apply with a cloth or mop after first cleaning floor thoroughly by mopping and removing any wax which may be on the floor. Let dry about 15 minutes, then apply another coat if required. Apply evenly. Floor must be thoroughly dry before applying. Shake before using and do not expose the product to freezing temperature.

FURNITURE-POLISH EMULSION

Sulfonated Castor Oil		10% Caustic Soda Solution	
Technical White Mineral Oil	1 pt.	Water	3 fl. oz.
		Pine Oil or Cedar-Leaf Oil	2 gal.
			to scent

Mix the oils together with a rotary egg beater or a high-speed power-driven agitator. Run in 1 quart of water and add the caustic soda solution. Mix well. Then gradually add the remainder of the water, with the agitator running. When it is all in, let stand for 15 minutes. Then agitate again for 5 minutes, repeating this several times until a perfect emulsion is obtained.

The best grade of sulfonated castor oil for this product is that sold by the National Oil Products Company, Harrison, N.J. under the name of Nopco No. 1540. However, any good grade of 50% sulfonated castor oil may be used in making the polish.

If properly made, this forms a white emulsion with very little tendency to separation.

This polish should be used as directed under the previous formula. Shake well before using.

FURNITURE CLEANER AND POLISH WAX EMULSION

Yellow Carnauba Wax No. 1		Powdered Borax	$\frac{1}{2}$ oz.
Oleic Acid	20 oz.	Pine Oil	1 oz.
Triethanolamine	2 oz.	Denatured Alcohol	4 oz.
	4 oz.	Water	to make 1 gal.

Put 1 pint of cold water into a kettle; then add the wax, oleic acid, borax, and triethanolamine. Cook until all is thoroughly melted and

mixed, stirring to prevent burning on the bottom of the kettle. Turn the heat well down and continue the cooking slowly until most of the water has been driven off. Add another pint of boiling water, and continue cooking until this has been mostly cooked off. Then gradually add enough boiling water to make 1 gallon, adding this slowly with constant stirring. In making large lots, use a steam-jacketed kettle and mix the product, while cooling, with a power-driven agitator. When the mixture has cooled down somewhat, add the scenting oil and the denatured alcohol, mixing well. After all the boiling water is in, stir frequently during the cooling process, so as to insure perfect emulsification.

A cheaper grade of carnauba wax, such as No. 3 gray may be used, but it does not make so good a product.

Directions for use: Apply with a soft cloth, rubbing well, then rub up to a high luster with a clean, dry, soft cloth. Use sparingly. Shake well before using.

SCRATCH ELIMINATING POLISH FOR FURNITURE, WOODWORK, ETC.

	%		
Dark-Brown Asphalt	23	Oil Citronella Perfume	to suit
Petroleum Naphtha		Petroleum-Soluble	
(Benzine) 500°-612°F.	4	Brown Dye	to suit
Light Mineral Oil (B.P.)	73		

Dissolve the asphalt in a mixture of the naphtha and mineral oil, adding the oil-soluble brown dye and perfume to cover the odor. No heating is necessary. Allow the batch to age overnight and check for complete solution of the asphalt in the solvents the following day.

Directions for use: With a clean cloth, apply liberally to scratches or damaged spots and then to the entire area. Polish to a bright finish with a clean, dry cloth.

This polish helps eliminate scratches on furniture, floors and woodwork. Works where the surface finish is damaged but does not affect the surrounding finish. Do not use on light finishes.

CAUTION: INFLAMMABLE COMPOUND!

FURNITURE POLISH

Light Mineral Oil	1 gal.	Japan Drier	1/2 pt.
Cedarwood Oil	2 pt.	Oil-Soluble Brown	
Raw Linseed Oil	1/2 gal.	Aniline	20 gr.
Turpentine	1 pt.		

Dissolve the aniline in the mineral oil. Mix the other ingredients and stir the colored mineral oil into the mixture.

This product should be only lightly colored, otherwise it will tend to darken the color of light finishes.

Directions for use: After dusting the furniture, apply the polish with a piece of cheesecloth, rubbing briskly with the grain of the wood. Do not use too much of the polish. Moistening the cloth is sufficient. Shake well before using.

FURNITURE POLISH

Lemon Oil	2 oz.	Denatured Alcohol	to make 1 gal.
Light Cylinder Oil	2 qt.	Oil-Soluble Brown Dye	to color

Color the alcohol to the desired shade, add the other ingredients, and mix well.

Directions for use: Moisten a cheesecloth with water and wring it almost dry, then moisten with the polish. Go over the surface to be polished lightly; then go over the surface with a dry cheesecloth. Always moisten the cheesecloth with water before moistening it with polish. Shake well before using.

FURNITURE POLISH

Light Mineral Oil	1 gal.	Cedar-Leaf Oil	4 oz.
Gasoline	1½ pt.	Oil-Soluble Color	to suit
Pine Oil	½ pt.		

Mix the first four ingredients and color to the desired shade with a small quantity of oil-soluble aniline. Red is the color most generally used. The light mineral oil is the grade sold by refining companies for the manufacture of polishes. What is commonly sold as "Straw Oil" is excellent for the purpose.

The gasoline adds considerably to the cleaning action, but may be omitted if the low flash point is objectionable.

Directions for use: Apply with a soft cloth, rubbing well with the grain of the wood. Use enough polish to moisten the cloth.

FURNITURE POLISH

	oz.		oz.
Camphor Gum	¼	Alcohol	2
Butter of Antimony	1	28% Vinegar	3
Spirits of Turpentine	2	Raw Linseed Oil	8

Dissolve the camphor in the alcohol, add the antimony to the vinegar, and add the turpentine to the oil; then mix all together.

Directions: Apply with a piece of white cotton batting, cheesecloth, or waste and rub until clean, then rub well with a clean piece of cotton batting or similar material. Shake well before using.

FURNITURE POLISH

Shellac	¼ oz.	Butter of Antimony	
Gum Mastic	2 dr.	(Antimony Chloride)	½ oz.
Rosin	¼ oz.	Wood Alcohol	5 oz.
		Paraffin Oil	5 oz.

Powder the shellac, gum mastic, and rosin and macerate in the alcohol, with occasional shaking until dissolved. Then strain through cheesecloth and add the paraffin oil and the butter of antimony. Mix well together.

Apply with a soft cloth, rubbing well with the grain of the wood. Polish with a very soft clean cloth.

AIR DEODORIZER (Wick Type)

40% Formaldehyde	32 fl. oz.	Water-Soluble	
Alcohol*	1 gal.	Green Dye	to suit
Water	1 gal.		

Mix the alcohol with the water and then add the formaldehyde slowly. Agitate the solution violently while adding the formaldehyde. Mix in a well-ventilated room to avoid irritation of the mucous membranes of the eyes and nose, at 75° to 85°F.

Directions: Use as any wick-type deodorizer. Or open the bottle, pull up the wick so as to expose 3 or 4 inches (depending on the strength of the odor). Leave wick exposed just long enough to eliminate odors, after which, push it back into bottle.

Put up in six-ounce widemouthed bottles with a screw cap. Use a flat cotton wick of about 1½ x 17 inches. Double when inserting and form a loop or handle to pull out the wick by tying a short length of tape or cord at the center of the loop. Color the solution if desired.

* 95% methanol, 91% isopropyl alcohol, or 188-proof completely denatured ethyl alcohol.

DEODORANT SPRAY

	%		%
Dichlorodifluoromethane		Flower of Pine Perfume	
(Freon 12)	50	Oils	4
Methylene Chloride	46		

Mix thoroughly. Put up in bottles with an atomizer or in pressure bombs as an Aerosol.

Directions: Do not use too freely, rather repeat its use.

Aerosols are usually packed for distribution by concerns specializing in this work. This Deodorant Spray helps to cover up unpleasant odors, such as cooking odors, smoke, odors from animals, sickness, etc.

HIGH-GLOSS CARNAUBA WAX POLISH FOR LEATHER,
AUTOMOBILES, FURNITURE, AND FLOORS

	%		%
Carnauba Wax	25	Water	74
Duponol LS Paste	1		

It is prepared by melting the wax in a steam-jacketed container and heating to 95°C. The Duponol is dissolved in water at 95°C. and added slowly to the molten wax, with high-speed stirring. Stirring is continued for a few minutes after all the water solution is added. Then the steam is cut off and the product stirred gently as it cools to room temperature. It will be water thin and neutral to brilliant yellow. If an alkaline emulsion is preferred, 1% of borax may be added to the water solution of Duponol.

This polish imparts a high gloss to leather, automobiles, furniture and floors.

RUG SHAMPOOS

Amine soaps or synthetic detergents plus a solvent coupling agent act as excellent shampoos for cleaning rugs and upholstered furniture. The copious lather produced with water solutions of these shampoos washes easily, does not harm the fabric, and leaves the colors clear and bright. To use these rug shampoos, dilute the concentrated detergent with an equal volume of hot water. As an applicator, use a sponge or soft cloth. Press the excess liquid from the applicator, work up a lather on it, and rub over the surface to be cleaned. Remove the soap by rubbing over the cleaned surface with a clean cloth well wet with clean, warm water. Rub the surface with a clean dry cloth to remove the water. It is best to com-

plete a small area at a time. Synthetic detergents may be preferred to soaps because of their better lathering and rinsing properties in hard water.

AMINE SOAP

	lb.		lb.
Oleic Acid	28.2	Monoethanolamine	6.7
Coconut-Oil Fatty Acids	21.0	Tergitol Wetting Agent 7	5.0
99% Isopropanol	30.0	Water	15.0
Triethanolamine	14.2		

Mix the oleic acid, fatty acids, and isopropanol. Add the amines and Tergitol and stir until thoroughly mixed. Then add the water, which will produce a clear liquid.

The formula is based on a combining weight for coconut-oil fatty acids of 210. The proportion should be changed according to the combining weight of the particular fatty acid to be used. All the triethanolamine may be replaced by an additional 6.3 pounds of monoethanolamine to increase the detergency of the shampoo.

SOAP-SOLVENT COMBINATION

The combination of a soap and a chlorinated or hydrocarbon solvent produces an excellent rug and carpet cleaner for use in commercial plants. An emulsion of solvent, soap, and water removes grease, tar, and paint more readily than does soap and water. The amine soaps, being soluble in these solvents, allow the preparation of clear solutions of solvents, soap, and water, which can be stored indefinitely without separation. The colors in the rugs or carpets will not be harmed but rather clarified and brightened by the cleaning process.

	lb.		lb.
Oleic Acid	28	Butyl Cellosolve	5
Ethylene Dichloride	13	Triethanolamine	16
99% Isopropanol	14	Water	125

Mix the oleic acid, ethylene dichloride, isopropanol, and butyl Cellosolve and add the amine. Stir until thoroughly mixed and add the water. If the mixture is cloudy, add sufficient isopropanol to clear it.

An emulsion made of equal volumes of this soap and water is recommended for cleaning rugs and carpets.

Adequate ventilation should be provided and special care should be

taken to avoid inhaling vapors and repeated contact with the skin when chlorinated solvents are used.

SYNTHETIC DETERGENT*

	lb.		lb.
Tergitol Wetting Agent 7	6.4	Tetrasodium	
Nacconol Detergent NRSF	3.2	Pyrophosphate	2.0
Carbitol or 99%		Water	90.0
Isopropanol	8.0		

Mix the Tergitol and Nacconol and stir at intervals until a clear gel is obtained. Add the Carbitol or isopropanol; then the water and tetrasodium pyrophosphate. Stir until a clear solution is obtained.

* Courtesy of Carbide and Carbon Chemicals Co.

PREVENTING SLIP OF RUGS AND CARPETS

38% Latex Emulsion	3 pt.	Colloidal Clay	4 oz.
Soap Solution*	5 pt.	Benzol	4 oz.

Dissolve by means of heat.

This is best made in a steam-jacketed kettle provided with a mechanical agitator.

Run the soap solution into the kettle and add the colloidal clay. Agitate until the clay has been absorbed completely. Shut off the heat and stir in the benzol to kill the froth. Then add the latex emulsion and continue to agitate until a perfectly even mixture is obtained.

This scientifically devised sizing and backing for rugs and carpets prevents them from slipping and skidding on polished floors. It leaves a colorless, nonsticky coating on the rug and is harmless to rugs or floors.

* The soap solution is made as follows:

Good Soap Chips	8 oz.	Water	5 pt.
Dissolve by heat.			

GLASS AND METAL CLEANER POLISHING WAX

	%		%
Stoddard Solvent	15.0	Nonionic Surfactant	1.7
Diatomaceous Earth	5.0	Pink Dye and Odorant	1.0
Bentonite	2.5	Water	73.0
Aqua Ammonia (26° Bé.)	1.8		

For a small test quantity in ounces, use an ordinary hand rotary egg beater or electric household mixer. For larger commercial lots, an Eppen-

bach mixer, colloid mill or homogenizer, or a portable power mixer must be used. Mix the ammonia, surfactant and Stoddard solvent, with rapid stirring. In another vessel, add the diatomaceous earth and bentonite slowly to the water, with rapid agitation; add a pink water-soluble dye at this stage, if desired, and slowly pour this mixture of abrasives and water into the hydrocarbon mixture, with rapid stirring. Add perfume or masking odor at this stage, if desired. Package in cans with lining.

Directions: Sponge on and wipe off.

GLASS CLEANER*

	Parts by Volume		Parts by Volume
99% Isopropanol	35.00	Tergitol Wetting Agent 7	0.25
Carbitol Solvent	7.50	Water	57.25

Mix the isopropanol, Carbitol and water; then add the Tergitol.

This solution makes an effective and quick-drying cleaner for windows and mirrors.

* Courtesy of Carbide and Carbon Chemicals Co.

WINDOW AND GLASS CLEANER

Isopropyl Alcohol	½ gal.	Lemongrass Oil	1 oz.
Water	1 gal.	Methyl Violet Aniline	10 gr.
White Soap Chips	2 oz.		

Dissolve the lemongrass oil in the isopropyl alcohol. Dissolve the white soap chips in the water by means of heat. Mix the soap solution with the alcoholic mixture and dissolve the methyl violet aniline in it.

This glass cleaner removes smoke, dirt, etc., and leaves the glass clean and brilliant. It contains no alkali of any kind and will not injure painted or varnished woodwork or the finish of automobiles.

Apply by spraying over the glass or with a cloth, wiping off with a soft dry cloth.

PAINT CLEANER*

Synthetic detergents combined with a mild alkali produce effective and economical cleaners that are easy on the hands and not destructive to painted surfaces. They are preferred to soap cleaners where only hard water or sea water is available. To use this cleaner, rub the soiled paint

surface with a cloth or sponge wet with the solution; then wipe with a dry cloth. If the surface is badly soiled, remove the soiled solution with a wet cloth before wiping.

	lb.		lb.
Carbitol Solvent or		Tetrasodium	
99% Isopropanol	4.0	Pyrophosphate	1.0
Tergitol Wetting Agent 7	3.2	Water	90.3
Nacconol Detergent NRSF	1.6		

Mix the Tergitol and Nacconol, and stir until the Nacconol is dissolved and a clear gel is obtained. Stir in the Carbitol or isopropanol and then the water. Add the tetrasodium pyrophosphate and stir until a clear solution is obtained.

The tetrasodium pyrophosphate content can be increased if desired. The solution can be diluted with 1 or 2 volumes of water and still be an effective cleaner for painted walls and woodwork.

* Courtesy of Carbide and Carbon Chemicals Co.

VENETIAN-BLIND CLEANER

Soap Chips	1 oz.	Borax	3 oz.
Virifoam A*	4 oz.	Water	1 gal.

Dissolve the soap chips, Virifoam A and borax in the water by heating.

This special product requires no hard rubbing or rinsing and is positively noninjurious.

Directions for use: Moisten a cloth with the liquid and go over the blinds in the same manner as when dusting. This may also be used on furniture and painted and varnished woodwork without injury.

* Virifoam A is one of the newer synthetic wetting-out and foam-forming agents. Chemically, it is an alkylaryl sulfonate.

CLEANING POWDER FOR WALLS AND PAINTED SURFACES

	%		%
Trisodium Phosphate		Technical Granular	
Dodecahydrate	97.2	Ammonium Chloride	2.8
		Light-Blue or Green	
		Fluorescent Dye	As desired

Mix intimately by passing through a sieve several times, and stirring well after each sifting. For larger quantities, a mixing and sifting machine must be used. Package in cardboard cartons with pouring spout or side tear opening.

Directions: For cleaning sinks, bath tubs, or tile, shake on a damp cloth, rub on the surface, and wipe off; for linoleums, dissolve two heaping tablespoons in a gallon of warm water, wash, and then rinse off with clean water; for cleaning walls, dissolve 2 heaping tablespoons in each gallon of water and sponge off the wall.

This is a dirt loosener and grease solvent for cleaning painted surfaces and silverware and for use in laundering.

WALLPAPER REMOVER*

	lb.		lb.
Tergitol Wetting Agent 08	12½	Water	75
Butyl Cellosolve	12½		

Mix the Tergitol and the water; then add the butyl Cellosolve.

This penetrating solution wets wallpaper quickly, loosening it from plaster or wood surfaces. It is also effective for removing labels from bottles or boxes. The solution is diluted with 6 to 7 parts of water, applied with a brush or sponge, allowed to remain for a minute or two, and the paper removed. A second application is required where two or more layers are to be removed.

* Courtesy of Carbide and Carbon Chemicals Co.

OVEN CLEANER

	%		%
Sodium Hydroxide	8.6	Water	85.0
Sodium Carboxymethyl Cellulose	6.4	Sassafras Oil	to suit

Dissolve the cellulose in about half of the water. In another container dissolve the sodium hydroxide in the remaining half of the water. Stir gently to dissipate the heat formed as the sodium hydroxide dissolves. Do not use containers of iron or aluminum. A large crock, unchipped porcelain container or a Pyrex glass container will do. After the solution of sodium hydroxide has cooled down to room temperature, slowly pour it into the solution of the cellulose, with stirring. Perfume if desired.

Directions for use: Apply by spreading with a brush on the oven surfaces. Leave on for 2 to 3 hours and then wash off with water.

Do not allow to stay on for more than 3 hours. Cleans hard encrusted grease without scrubbing or scraping from ovens, oven racks, gas grids, or electric element rings.

Wash off immediately any that may come in contact with skin. The internal antidote is copious amounts of fruit juices or vinegar followed by olive oil or butter. Prevent contact with clothes or linoleum and do not use on painted surfaces, aluminum, or enamel ware.

OVEN CLEANER

	%		%
Soda Lye	25	Water	45
Methocel	30		

Mix.

COLORLESS SHOE POLISH AND DRESSING

Carnauba Wax	5 lb.	Water	4 gal.
Yellow Ceresin Wax	5 lb.	Turpentine	12 fl. oz.
White Soap Chips	1¼ lb.		

Put the soap chips and the waxes into a kettle with the water and cook, with frequent stirring, until completely dissolved and an even mixture results. Remove from the fire and cool down until it begins to thicken; then add the turpentine and mix until it forms a perfectly smooth emulsion. Any good grade of soap chips may be used.

This makes a heavy, firm paste for putting up in jars. For putting up in collapsible tubes, increase the water to 4½ gallons and the turpentine to 16 fluid ounces.

This polish and dressing may be used on all colors of leather. It gives a quick and brilliant finish on shoes and all finished leather goods, such as suitcases, traveling bags, belts, etc. It softens and preserves the leather.

Directions for use: Apply to the leather in the usual manner and, after a few minutes, rub up to a high gloss with a brush or polishing cloth.

Contrary to the quite general belief, coloring matters have little effect on shoe dressings. These dressings have no penetrating (striking) powers and they will not lend color to shoes. They are added simply for the psychological effect.

This dressing may be colored to suit by the use of water-soluble aniline colors. Generally, about 3 ounces of dry powdered color will be sufficient for the quantity given in the formula.

Dissolve the dry color in the water used in making the product. For black, use water-soluble nigrosine; for a light tan, use Orange G; for a

deep tan and brown, use Orange G, with just enough Bismark brown to give the shade wanted.

WHITE SHOE CLEANER AND WHITENER

	%		%
Methyl Cellulose	2.0	Bentonite Clay	1.9
Oleic Acid	0.75	Zinc Oxide	0.2
Olive Oil	0.60	Water	80.2
Triethanolamine	0.25	Perfume Oil	As desired
Titanium Dioxide	14.1		

Dissolve the methyl cellulose in about one half of the water (hot), with stirring and then chilling to 5°C. The solution is then stable at room temperature. In a separate container thoroughly grind the titanium dioxide, clay, and zinc oxide. Mix the oleic acid and olive oil together with the triethanolamine in the balance of the water with rapid stirring to form an emulsion. A colloid mill or homogenizer is very effective. Then wet the ground pigment thoroughly with this emulsion forming a smooth paste finally add the methyl cellulose solution with continual stirring until a smooth mixture is obtained. Perfume at this point, if desired.

The addition of a suitable preservative is recommended. About 0.1% is generally sufficient. Various phenol compounds (Dowicide A), esters of *p*-hydroxybenzoic acid (Parasepts), and sodium salicylate may be used. This will greatly extend the shelf life of the product.

This white shoe cleaner and whitener protects as well as preserves.

WHITE SHOE CLEANER AND POLISH

Wax Emulsion*	1 pt.	Dioxide	1½ lb.
Gum Mucilage**	1 pt.	Sassafrassy Camphor Oil	12 oz.
Lithopone	1 lb.	Cold Water	1½ pt.
Technical Titanium			

Add the camphor oil to the wax emulsion after it has become cold; then stir this emulsion into the gum solution, also cold. Mix the lithopone and the titanium dioxide and sift the mixed powders into the mixed mu-

* Yellow Carnauba Wax,	Good White Soap Chips	2 oz.
No. 1	Water	½ gal.

Put all together into a kettle and heat, with gentle stirring, until thoroughly dissolved and forming a smooth emulsion.

** The gum mucilage is prepared by soaking ½ ounce of gum tragacanth in one pint of cold water until thoroughly softened and dispersed in the water. This will require at least 12 hours.

cilage and wax emulsion, stirring constantly. Finally thin out with cold water, adding this slowly with constant stirring.

The product is improved by running twice through a paint mill, but a very good product can be made without grinding.

This is a quick selling and highly profitable summer specialty, a superior product suitable for use on all kinds of white leather. It gives a "like new" finish which will not rub off and cleans and polishes in one operation.

Directions for use: Apply with a clean cloth evenly, rubbing well. When perfectly dry, rub lightly with a clean dry cloth.

SHOEMAKERS' WAX BURNISHING POLISH

	%		%
Carnauba Wax	10.0	Iron Chloride or Acetate	3.0
Turpentine	10.0	Acetic Acid 10% Solution	2.0
Duponol WA Paste	10.0	Water	65.0

Melt the wax and turpentine together and pour into a solution of the Duponol in 45 parts of the water at 95 to 100°C. Stir vigorously until a smooth emulsion is formed and then stir gently until the emulsion has cooled to approximately 35°C. At this point add a solution containing the iron salt and acetic acid, dissolved in the remaining 20 parts of water. Continue stirring slowly. The viscosity of the emulsion will be at first greatly increased, after which it will return to its initial value; the resulting emulsion is a relatively stable, smooth, fluid paste.

This type of emulsion is used by shoemakers for blackening the bottoms and sides of shoe soles. The iron salt in the emulsion and the tannin in the leather react to form a black tannate. When buffed, a beautiful, blooming glow is formed on the leather.

LEATHER POLISH

	%		%
Carnauba Wax	12.0	Duponol WA Paste	4.0
Turpentine	16.0	Du Pont Nigrosine WSJ	
Du Pont Nigrosine		Crystals or Powder	1.0
SSJ Powder	2.0	Water	65.0

Dissolve the water-soluble nigrosine and the Duponol in the water and heat the solution to the boiling point. In a separate preferably steam-heated vessel, melt the carnauba wax and turpentine and add the spirit-soluble Nigrosine SSJ. After the dye has dissolved, slowly pour the tur-

pentine mixture (at approximately 95°C.) into the Duponol solution while stirring. Stir vigorously until a smooth emulsion is formed, and then gently until cooled to room temperature.

This forms a paste suitable for polishing black leather. If the nigrosine is omitted from this formula, the liquid is cream colored and suitable for polishing light colored leathers. For other colored leathers, appropriate du Pont basic dyes may be used.

NONINFLAMMABLE LIQUID STOVE POLISH

Oleic Acid	1 gal.	Carbon Black	11 lb.
Stearic Acid	1 lb.	Glucose	1 lb.
Dixon's No. 2 Graphite	22 lb.	Silicate of Soda	
Water	11 gal.	(Water Glass)	½ gal.
Soap Chips	2 lb.		

Put the oleic and stearic acids, with 5 gallons of water into a kettle, and heat until completely melted. Add the glucose and stir until mixed with the water.

In another kettle, dissolve the soap chips in 6 gallons of water. When completely dissolved, bring to a boil and sift in the graphite and carbon black. Continue to boil, with stirring, for about 10 minutes; then slowly run in the mixture of hot oleic and stearic acids with water, stirring constantly.

Remove from the fire and continue stirring until completely combined. Add the silicate of soda, continuing the stirring until nearly cold. Then run into cans or bottles. It must be kept well agitated while putting into containers. The mixing is best done in a mechanical mixer, as the more thoroughly it is stirred during cooling, the better will be the finished product.

Directions for use: Apply when the stove is nearly cold, putting on thinly and polishing with a flannel cloth or polishing mitt. Shake well before using.

CLOGGED DRAIN OPENER POWDER

	%		%
Solid Granulated Sodium Hydroxide	53	Crude, 95% Sodium Nitrate	43
		Aluminum Metal Turning or Punching	4

A product of this type should be mixed as quickly as possible to avoid excessive contact with the air. Sodium hydroxide rapidly absorbs moisture and carbon dioxide from the air and becomes difficult to handle as a dry material. The product should be packed dry and kept dry in airtight containers. The presence of moisture in a sealed container may cause the release of sufficient gas to "blow up" the can. The Federal Caustic Poison Act requires that products containing caustic soda be labelled POISON, with directions for the treatment of external or internal injury.

Directions for use: After removing the water from the sink, bowl, tub, etc., and strainer also, if possible, put 1 tablespoonful of drain-opener powder into the opening and rinse it in with $\frac{1}{2}$ to 1 cup of water. Do not use the sink, tub, etc., for at least 30 minutes. Sluggish and slow-running drains may be treated in the same way, while for toilets shake in $\frac{1}{4}$ can of drain-opener powder and add a pint of cold water.

Put up in twelve-ounce round metal cans. Order special cans suitable for a drain cleaner containing caustic soda.

Label POISON with directions for internal and external antidotes. Eyes, skin, and clothing should be protected from splashings. Keep the drain opener dry in the container. Do not disturb with plunger after the powder has been put into the drain.

Antidote for Eyes: Apply water freely and wash with 5% boric acid solution.

Internal Antidote: Give freely citrus juices, such as grapefruit lemon, orange, lime, etc., following with olive oil or any cooking oil, butter, or oleomargarine.

External Antidote: Wash freely with water and then with a solution of Epsom salt; follow with olive oil or any cooking oil, butter, or oleomargarine.

DRAIN-PIPE CLEANER

	%		%
Soda Lye	50	Trisodium Phosphate	50

Mix thoroughly.

COSMETIC SPECIALTIES AND TOILET PREPARATIONS

It is the purpose of this chapter to describe the newer types of cosmetic preparations and to suggest formulae for their manufacture. It must, however, be understood that only general formulation can be given, as requirements vary from manufacturer to manufacturer, from locality to locality, from season to season. A formula that might prove entirely satisfactory *as is* to a manufacturer in New York may have to be varied considerably before it meets the approval of a cosmetic house in Florida. One manufacturer requires a vanishing cream which is soft and *pearly*. Another is only satisfied with a white opaque cream with a considerable amount of *body*. Individual requirements demand individual variations. These variations naturally require experimenting. In trying a particular formula, small-scale laboratory experiments are absolutely necessary. Variations can then be made at the minimum of cost. Observation of results over periods of time and under changing conditions of temperature must also be made. Even after all these tests have been completed and the product approved, a small pilot batch should be made before large-scale production is attempted.

The manufacture of cosmetics has changed considerably from the mortar-and-pestle techniques of the local druggist. Today, cosmetics are made in the most modern type of manufacturing plants under the most hygienic conditions and under the supervision of highly trained cosmetic chemists. New raw materials have made possible the production of creams, lotions, etc., which only a few years ago were unknown or were produced with great difficulty and at tremendous costs.

A formula is only as good as the materials which go into its manu-

facture. It is, therefore, important to secure the best possible ingredients of the highest degree of purity. In the manufacture of many cosmetic preparations, it is necessary to heat the various ingredients prior to mixing. The formulae in this book indicate the temperatures to which such mixtures should be heated and also the temperatures at which the finished products should be poured. These temperatures must be followed very carefully by means of a thermometer. Care must be taken in reading temperatures that the thermometer bulb is completely immersed in the liquid and allowed to stay there for a while before reading. Do not guess at temperatures—make sure.

A point often overlooked by cosmetic manufacturers is the water used in the manufacture of creams, lotions, etc. Hard water must never be used as it causes the formation of scum and insoluble soaps which make the finished product dull, lifeless and nonuniform. In all cases, use either soft or distilled water.

When a cosmetic preparation contains animal or vegetable waxes, oils, gums, etc., emulsified with water, the addition of a preservative to prevent mold growth is essential. Mold inhibitor, a preservative offered by the Glyco Products Co., Inc., has been used successfully for many years by a number of leading cosmetic manufacturers. Mold inhibitor is a parahydroxybenzoic acid derivative and is generally used in the proportion of 18 ounces to 100 gallons of the finished product. It should be dissolved by means of heat in the water called for in the formula. The mold inhibitor may be used in most creams, whether so indicated in the formula or not.

EQUIPMENT. In making cosmetic preparations, it must be remembered that the type of equipment used plays a very great part in obtaining good and uniform results. For creams, jacketed kettles lined with enamel, stainless steel, block tin, or aluminum are recommended. Iron, copper, and lead should be avoided. Agitation should be steady and of a fairly low speed. In order to avoid beating air into the cream, the agitator blades should be completely immersed and as near the bottom of the vessel as possible. Creams should be cooked gradually. Slow, intermittent stirring while cooling is often advantageous.

POURING CREAMS. The temperature at which a cream is poured determines, to a large extent, the type of *finish* obtainable on the surface of the cream. Poured at too high a temperature, the cream will exhibit air holes due to entrapped bubbles trying to escape. If the cream is poured at too low a temperature, *ringing* will occur due to the heaviness of the cream. While both these faults can be remedied somewhat by *flaming*

(playing a flame lightly on the surface of the cream in the jar) and *topping* (filling the jar about three quarters full and adding more of the cream in liquid form at a higher temperature afterward), both these methods are mere expedients. It is better to determine by experiment the best temperature to pour and keep as near this temperature as possible.

PERFUME AND COLORING MATTER. Although the amounts of perfume and color used in a cosmetic cream are very small, they can have considerable influence on the success or failure of the cream. Care must be taken to avoid perfumes which irritate the skin or tend to discolor the product. Only those colors should be used which are definitely recommended for cosmetics. Dyes containing excessive amounts of salt should be avoided in the manufacture of creams and lotions of the emulsion type.

EMULSIONS. As many cosmetic preparations are classified as emulsions, a brief description of emulsions may be of interest to cosmetic manufacturers. In nontechnical language, an emulsion may be defined as a homogeneous suspension of small drops of one liquid in another with which it is normally not miscible. Thus a liquid cleansing cream is an emulsion of mineral oil in water. Most emulsions in the cosmetic industry are dispersions of oils and waxes in water. They are said to be oil-in-water emulsions, meaning that the oil (or wax) is dispersed in the form of tiny drops in the water. Such an emulsion can be diluted readily by adding more water. In certain cases, however, a water-in-oil emulsion is desirable. Here it is the water which is dispersed in tiny droplets in the oil or wax. Such an emulsion cannot be diluted with water. It can, however, be diluted with additional oil. An emulsion of this type is the absorption-base cream in which the water is dispersed in the absorption base.

The requisites of a good emulsion in the cosmetic industry are as follows:

- (1) It should not separate into layers.
- (2) It should not discolor on aging.
- (3) It should not change in consistency.

In order to obtain a stable emulsion, a third substance known as an emulsifying agent, is required. The emulsifying agent, by combining with, or coating the oil to be emulsified, tends to preserve the small particle size of the oil, thus enabling it to remain in permanent suspension in the water. It must be remembered that the choice of the correct emulsifying

agent for a particular purpose is very important. The formulae given in this book list suitable emulsifying agents.

Freedom from discoloration of the emulsion on standing over long periods of time also depends, to a large extent, on the correct emulsifying agent. Certain emulsifying agents, while perfectly satisfactory as regards stability, tend to oxidize and turn yellow, after some time, thus making the product unsalable.

Another important requisite of a good emulsion is that it should not change in consistency on standing. A cream or paste emulsion should not become thin or semifluid. A liquid emulsion should not thicken and become unpourable. Of course, temperature changes play a great part in such variations and a cream or liquid emulsion which is perfectly satisfactory in cold climates might be far too thin or liquid in warmer climates. While an emulsifying agent may meet all the previous conditions, it may be too alkaline or acid or have other properties which make it unsatisfactory for application to the skin. In the manufacture of emulsions, directions should be followed carefully. Spoiled emulsions are due, in most cases, more to improper technique and incorrect methods of mixing, etc., than to any other cause.

ALL-PURPOSE CREAM

	Parts		Parts
Lanolin	6	Water	125
Glyceryl Monostearate	30	Petrolatum	4
White Mineral Oil 65-75	28	Perfume Oil	1
Glycerin	6		

Melt the lanolin, glyceryl monostearate, and petrolatum, heating with the mineral oil to 150°F. Mix the glycerin with the water and heat to 150°F. Pour the wax-oil solution into the water solution, stirring constantly, and when nearly cool, add the perfume oil.

FOUR-PURPOSE CREAM

This cream has a cooling effect on the skin and is nongreasy. It serves equally well as a cleansing and as a massage cream. No oil or grease is left behind after the usual hot-towel application.

A. White Petrolatum	4½ lb.	B. Water	71 lb.
Paraffin Wax	18 lb.	Triethanolamine	2 lb.
White Mineral Oil	18 lb.	Mold Inhibitor	3 oz.
Glycostearin	18 lb.	C. Perfume	as required

Heat A to 166°F. and stir until complete solution is obtained. Heat B to the same temperature and add A to B, stirring continuously while cooling. Add C at 135°F. and pour at 120° to 125°F.

NOURISHING CREAM

A. White Petrolatum	4 lb.	B. Water	65 lb.
White Mineral Oil	10 lb.	Mold Inhibitor	2 oz.
Anhydrous Lanoline	6 lb.	C. Perfume	to suit
Glycostearin	15 lb.		

Prepare by the same method as the preceding *Four-Purpose Cream*.

GENERAL-PURPOSE TOILET CREAM

Oxycholesterin Absorption Base*		Hydrous Lanoline	1 oz.
	1 oz.	Water	5 fl. oz.
Light-Yellow Petrolatum	2 oz.	Perfume	sufficient

Melt the petrolatum and absorption base with the lanoline at 150° to 160°F. Then stir in the water (warm) and continue to stir until a perfectly smooth cream results. Then stir in the perfume. If a colored product is wanted, add a very small quantity of oil-soluble certified yellow or orange color.

This formula produces a cream of the newer general-purpose type. It may be used as cleansing and foundation cream as well as a massage and emollient (skin-softening) cream and also as a sunburn preventative. It also makes a perfect powder base. It leaves the skin soft and smooth and has no tendency to clog the pores; it is nonalkaline and nonirritating.

* The absorption base has the property of absorbing several times its own weight of water and holding this mixture in combination with petrolatum, etc. These bases are sold under various trade names such as *Parachol*, *Falba* absorption base, *Cremogene A*, etc.

ALL-PURPOSE CREAM*

	%		%
A. Mineral Oil	5.0	B. Water	32.3
Atlas G-2859	3.5	Magnesium Sulfate	0.2
Tween 60	0.5	Sorbo	2.5
Petrolatum	40.0	Preservative	sufficient quantity
Lanolin	4.0	C. Perfume	sufficient quantity
Paraffin or Micro-crystalline Wax	12.0		

* Courtesy of Atlas Powder Co.

Warm the oil phase A and the water phase B separately at 70° to 75°C. Add B gradually to A while stirring. Add C at 55° to 60°C. Fill directly into jars at 55° to 60°C.

THREE-PURPOSE FACIAL CREAM

White Mineral Oil	9 pt.	Anhydrous Lanoline	1 lb.
Lily-White Petrolatum	5 lb.	Borax*	6 oz.
White Beeswax	2½ lb.	Water	12 pt.
White Ceresin Wax	1 lb.	Perfume Oil	about 3 fl. oz.

Melt the waxes in the mineral oil by gentle heat; then add the petrolatum and lanoline and continue to heat gently until completely melted. Dissolve the borax in the water by means of heat. Have the wax-oil mixture and the borax solution at about 160°F. Pour the borax solution all at once into the wax-oil mixture. Remove from fire and beat or stir until it begins to thicken; then stir in the perfume oils and pour into jars, leaving the lids off until the cream is perfectly cold.

This is one of the best cleansing, emollient and skin softening creams that can be made.

* Some modern creams contain borax for increasing their body.

LUBRICATING, NOURISHING, OR TISSUE CREAM

	Parts		Parts
Lanolin	23	C. P. Cholesterin	5
Odorless Cocoa Butter	14	Borax	2
White Beeswax	22	Water	30
Cetyl Alcohol	24	Sodium Benzoate	1
White Mineral Oil	97	Perfume Oil	2

Melt the waxes and fats, heating with the mineral oil to about 150°F. Add the cholesterin and stir until dissolved. Dissolve the borax and sodium benzoate in the water and heat to 150°F; then slowly pour this solution into the melted fats, constantly stirring, and when nearly cool add perfume oil.

NONALKALINE TISSUE CREAM

A. Spermaceti	10 lb.	Almond Oil	30 lb.
Lanolin	20 lb.	B. Water	90 lb.
Glycostearin	46 lb.	Mold Inhibitor	4 oz.
Olive Oil	20 lb.	C. Perfume	to suit

Heat A to 150°F. Heat B to 150°F. and run it into A slowly, with stirring. Add the perfume at about 150°F. Pour at 95° to 100°F.

SKIN AND TISSUE CREAM

Bleached Beeswax	14 oz.	Anhydrous Lanolin	3 oz.
White Ceresin Wax	4 oz.	Borax	1 oz.
White Mineral Oil	18 fl. oz.	Water	3 pt.
White Petrolatum	14 oz.	Perfume Oil*	Sufficient

Melt the beeswax and ceresin wax in the mineral oil by gentle heat, add the lanoline and petrolatum, and continue to heat gently until entirely melted. Dissolve the borax in the water by means of heat and add this hot solution all at once to the hot oil-wax mixture. Remove from the fire and stir until it begins to thicken. Then stir in the perfume oil and pour into jars, leaving the lids off until the cream is entirely cold.

* Any desired perfume oil may be used. About $\frac{1}{2}$ ounce will be sufficient for the given quantity of cream.

COLD CREAMS

Cold creams are the basic creams of the cosmetic industry, although their use has been somewhat displaced in recent years by newer types of creams giving different effects. Consisting of an emulsion of a mixture of oils and waxes, cold creams leave an oily film on the skin and are recommended chiefly for dry skins. A good cold cream must have a body of the consistency of butter, must be absolutely white, and must give a smooth uniform appearance when cut with a knife. It must have a high lustrous surface, must not *sweat* oil, and must break down easily when applied to the skin. The use of crystalline waxes should be avoided because they tend to cause oil separation, give nonuniform products, and promote shrinkage. To *body* cold creams, the use of Ceraflux is recommended. This is a white amorphous (noncrystalline) wax, free from the *sour* odor associated with paraffin wax and does not cause oil separation in the cream. A combination of Ceraflux and ozokerite (another noncrystalline hydrocarbon wax) has been found to give the best results at a moderate cost. The addition of special oils, lanolin, vitamins, etc., gives special effects for different purposes.

Cold creams are somewhat similar to cleansing creams in composition. They usually contain a mixture of fats and waxes of the saponifiable type and less oil than cleansing creams. Because cold creams usually remain in contact with the skin for several hours, they should contain proper skin conditioners and provide maximum absorbability of the fatty matter. A fairly high lanolin content is recommended for a cold cream.

BASIC COLD CREAM

A. White Mineral Oil (Light	Cereflux	2 lb.
or Medium Viscosity) 2 gal.	B. Water	1 gal.
White Beeswax 2 lb.	Borax	3 oz.
White Ozokerite 1 lb.	C. Perfume	2 oz.

Heat A to 170°F. and add slowly, while stirring thoroughly, B which has previously been heated to 175°F. Continue stirring while allowing to cool to 150°F. Then add C., with stirring and pour at about 130°F.

If all the cream is not packed at once, it may be stored in bulk. It should be reheated to 130°F. carefully on a water or steam bath, with slow stirring, and then poured into jars.

The following creams can be made very easily, using the above formula as a basis.

TISSUE CREAM

To A in the basic cold-cream formula, add 2 pounds of anhydrous lanolin and proceed as above. Add slightly greater amount of perfume and dissolve a small amount of Moldex (1½ ounces to 10 gallons) in B.

CUCUMBER CREAM

Use the basic cold-cream formula, but dissolve a little green dye (Aquafarb Green) in the water is used. Also add cucumber perfume.

LEMON CREAM

Make as before, using tartrazine as the dye and lemon oil as perfume.

STRAWBERRY CREAM

Make as before, using erythrosine as the dye and aldehyde C₁₆ as the perfume.

PEACH CREAM

Make as before, using a peach color and aldehyde C₁₄ as perfume.

ALMOND CREAM

Make as before, using benzaldehyde as perfume.

MENTHOL (COOLING) CREAM

Make as before, using 1 oz. of menthol as perfume and cooling agent.

COLD CREAM

White Beeswax	2 lb. 13 oz.	Borax	1¾ oz.
White Ceresin Wax	1 lb. 14 oz.	Water	5 pt.
White Mineral Oil	11 pt. 9 fl. oz.	Perfume Oil	to suit

Melt the waxes with the mineral oil, heating to 160°F. Dissolve the borax in the water and bring to the same temperature. Pour the borax solution all at once into the melted wax-oil mixture and stir well. Remove from the fire and continue to beat or stir until it begins to thicken; then add the perfume oil and mix thoroughly. Any desired cream perfume oil may be used. The customary quantity is 6 to 8 ounces of perfume oil to each 100 pounds of cream.

Pour into jars when it has just reached a temperature at which it will just pour and leave the lids off for 12 hours.

COLD CREAM*

Stearic Acid	30 lb.	White Mineral Oil	33 lb.
Anhydrous Lanolin**	20 lb.	Triethanolamine	4 lb.
White Beeswax	16 lb.	Propylene Glycol	16 lb.
Terpineol	3⅓ oz.	Water	95 lb.

Melt the stearic acid, lanolin, and beeswax in the mineral oil, heat to 70°C and then add the terpineol. Heat the water to 70°C in a separate kettle, add the triethanolamine, and then add this solution to the hot mixture of wax and oil. Stir vigorously until a creamy emulsion is obtained. Add the perfume to the propylene glycol and add this solution to the emulsion. Continue stirring until the emulsion is smooth and quite viscous, and then stir occasionally until room temperature is reached.

It is possible to pour this cream into jars while still warm and thin enough to pour, but the resulting cream may not have the smooth texture of a cream that is packaged when cold. A pressure filler is usually necessary to fill the containers with the emulsion at room temperature.

This is a smooth, stable cream that can be easily applied to the skin, even though it is more viscous than the cleansing creams. It is readily removed with a soft cloth or absorbent tissue, or it can be washed from the skin with water.

This formula should serve as a starting point for making a cold cream to suit the individual preference, and should not be considered as necessarily the best product obtainable. Great variation in the wax and oil

* Courtesy of Carbide and Carbon Chemicals Co.

** Best grade, light-colored.

constituents is possible with little change in the basic ingredients. For example, vegetable oils, such as sweet-almond or olive oil, may be substituted for all or part of the mineral oil to produce an excellent product.

PETROLATUM COLD CREAM

White Beeswax	1 lb.	Borax	120 gr.
White Ceresin Wax	1 lb.	Water	1½ pt.
White Mineral Oil	6 pt.	Perfume Oil	to suit
White Petrolatum	1½ lb.		

Melt the waxes and the petrolatum with the white mineral oil, heating to 160°F. Dissolve the borax in the water, heating to the same temperature. Pour the borax solution into the wax-oil-petrolatum mixture, all at once, and stir thoroughly. Remove from the fire and continue to stir until it begins to thicken; then add the perfume oil, mix well, and pour into jars, leaving the lids off until the cream is perfectly cold.

GREASELESS CREAMS

The so-called greaseless creams are of the oil-in-water emulsion type. Vanishing creams, most of the hand creams, antiperspirant creams, brushless shaving creams, industrial protective creams and many of the make-up foundations creams belong to this group.

The greaseless type of cold cream differs from the regular type in that it is an emulsion of oils and waxes in water where the water content is much higher than the oil content. Its popularity is increasing because it leaves a nongreasy film on the skin which can be removed very easily with water. It is recommended for all but the very driest of skins. In the manufacture of greaseless cold creams glycostearin (refined diglycol stearate) or glyceryl monostearate is used. In making creams with these emulsifying bases, it must be remembered that the initial emulsion, when hot, is a water-in-oil emulsion. The finished cream is an oil-in-water emulsion. Thus at a certain stage of the manufacture a reversal takes place. It is necessary to pour the cream after the change of emulsion type occurs; otherwise the cream will be lumpy and grainy.

The formulae given in this chapter can be poured at the recommended temperatures. If variations in the formula are made, however, the correct pouring temperature must be determined by experiment. The use of a mold inhibitor as a preservative is suggested in all cases.

The modern type of greaseless cream is largely based on the use of

glyceryl monostearate, although fatty acid esters of glycols and polyethylene glycols are also used to give a variety of effects and a wide range of end products.

Aldo 28 is the self-emulsifying grade of glyceryl monostearate, containing a small amount of soap. A stable dispersion is made simply by heating Aldo 28 and water at about 160°F., with continuous stirring, until a homogeneous emulsion results. The stirring is continued until the emulsion reaches room temperature. When the quantity of Aldo 28 used is 3 to 5% a liquid cream or lotion is formed and 12 to 20% Aldo 28, a cream of heavy consistency is obtained. By usual emulsion procedures, Aldo 28, together with the customary cosmetic ingredients, forms greaseless oil-in-water creams which can be modified to obtain different effects.

GREASELESS CREAM

	Parts		Parts
Spermaceti	5.0	Preservative	
Aldo 28	12.0	(Mold Inhibitor)	0.1
Glycerin	5.0	Perfume	0.4
Titanium Dioxide	2.0	Water	75.5

All of the ingredients, except the titanium dioxide and the perfume, are heated together to 90°C. and stirred until a homogeneous mixture results. The titanium dioxide is ground thoroughly with a small portion of the cream taken from the batch, and this is then stirred into the rest. The titanium dioxide is used to make the cream opaque rather than translucent and may be omitted or its quantity increased as desired. The perfume is added when the temperature drops to about 45°C.

GREASELESS COLD CREAM

Formula No. 1

A. White Petrolatum	9 lb.	B. Glycopon S	3 lb.
Paraffin Wax	6½ lb.	Water	55½ lb.
White Mineral Oil	14 lb.	Mold Inhibitor	2 oz.
Glycosterin	12 lb.	C. Perfume	to suit

A is heated to 166°F. and stirred until complete solution is obtained. B is heated to the same temperature and added slowly, with stirring, to A. Stirring is continued while cooling and C is added at 130°F. The cream can be poured at 110°F.

Formula No. 2

A. White Petrolatum	6 lb.	B. Water	6 gal.
Paraffin Wax	2 lb.	Mold Inhibitor	2 oz.
White Mineral Oil	3¾ gal.	C. Perfume	to suit
Glycostearin	14 lb.		

Follow the directions under formula No. 1.

GREASELESS BALM CREME

A. Mineral Oil (Light)	½ oz.	Chlorothymol	16 gr.
Propylene Stearate	1 oz.	Isopropyl Alcohol	3 dr.
B. Boiling Water	10 oz.	D. Glycerin	½ oz.
C. Powdered Karaya		Sodium Benzoate	8 gr.
Gum	80 gr.	Water	to make 1 pt.
Menthol	60 gr.		

Melt A in a double boiler. Stir B into A. Mix C separately and stir it into the mixture of A and B after it has cooled. Then, add D and run the entire mass through a homogenizer.

Stir in any desired perfume in sufficient quantity, let stand 24 to 48 hours to *shrink* before putting up into tubes.

This cooling, antiseptic skin cream is excellent for chapped hands, rough dry skin, to soothe sunburn and windburn, for relieving bites and stings, for frostbites, as a powder base, for cooling hot, tired feet and for use after shaving. It rubs in quickly without leaving an unpleasant greasy or sticky film.

The consistency of this product depends on the amount of propylene stearate used.

CLEANSING CREAMS

Liquefying cleansing creams are composed of approximately 50% mineral oil and petrolatum to give sufficient viscosity so that when the cream liquefies on the skin, it suspends the dirt which is removed from the skin. For stiffening these creams, a noncrystalline wax such as cerafflux or ozokerite, or a combination of the two, should be used. These creams should be poured at the lowest possible temperature. As these creams are affected by temperature, the hard opaque cream formula is recommended for the summer time or hot countries whereas the soft translucent cream is suggested for the winter time or for cold countries.

CLEANSING CREAM

	Parts by weight		Parts by weight
Liquid Petrolatum	50	Polyethelene Glycol	
Lanolin Absorption Base	5	Monostearate	5
		Water	40

This cream may be made a little thicker by putting some of the polyglycol ester with the water portion, or by adding a slight amount of triethanolamine.

LIQUID CLEANSING CREAM

Formula No. 1.

A. Stearic Acid	3 lb.	B. Water	3 gal.
Mineral Oil	2 gal.	Deramin	6 lb.

Heat A to 170°F. Heat B to 170°F. and add slowly, with rapid stirring, to A. Continue stirring until the temperature falls to 150°F. Then add 2 oz. of perfume. Stir until cool. Make a thicker cream by replacing part of the mineral oil by petrolatum.

Formula No. 2.

a. Mineral Oil	91 oz.	b. Water	1½ gal.
Savolin	24 oz.		

Heat A to 160°F. with stirring. Heat b to 160°F. and add slowly to a, with good stirring.

Stir in 1½ ounces of perfume oil when cooled to 140°F. Continue stirring slowly until cold.

This cream is thinner than the previous one. It is an effective cleanser, but will not remove indelible rouge or lipstick.

These milky creams are stable and effective cleansers. They will even remove indelible lipstick and rouge from the skin in addition to the usual grime and dirt. They leave the skin clean, fresh and stimulated and serve as perfect powder bases without any harmful effect.

SOFT, TRANSLUCENT LIQUEFYING CLEANSING CREAM

	oz.		oz.
Mineral Oil	56	White Petrolatum	19
Ceraflux	25		

Melt the ingredients and stir together on a water bath. Add about 4 ounces of perfume to each 100 pounds of cream. Pour at the lowest possible temperature and allow to stand undisturbed until solid.

MEDIUM, TRANSLUCENT LIQUEFYING CLEANSING CREAM

	oz.		oz.
Mineral Oil	50	White Petrolatum	23
Ceraflux	18	Spermaceti	9

Use the same method as in the preceding formula.

MEDIUM, OPAQUE LIQUEFYING CLEANSING CREAM

	oz.		oz.
Mineral Oil	50	White Petrolatum	20
Ceraflux	30		

Use the same method as in the previous formula.

HARD, OPAQUE LIQUEFYING CLEANSING CREAM

	oz.		oz.
Mineral Oil	45	White Petrolatum	20
Ceraflux	25	Spermaceti	10

Use the same method as in the previous formula.

If a stiffer cream is desired, part of the ceraflux may be replaced by small amounts of ozokerite or carnauba wax.

WATER-SOLUBLE CLEANSING CREAMS

These creams are of the emulsion type and are somewhat similar to the greaseless cold creams.

Formula No. 1

A. White Mineral Oil	35 lb.	B. Water	38 lb.
Spermaceti	13 lb.	Glycocon S	4 lb.
Glycostearin	10 lb.	Mold Inhibitor	1/2 oz.
		C. Perfume	to suit

Heat A to 140°F. and add slowly, with stirring, to B, heated to the same temperature. Continue stirring. Add the perfume at 125°F. and pour at 115° to 120°F.

Formula No. 2

	lb.		lb.
A. White Mineral Oil	76	Spermaceti	26
White Beeswax	5	Trigamine Stearate	20

B. Water	92	C. Perfume	1
Glycerin	4		

Heat A at 180° to 200°F. and stir until complete solution is obtained. Add to B, previously heated to 180°F., stirring slowly while cooling. Add just before the cream begins to set. Allow to stand overnight. Stir thoroughly the following morning and package.

LIQUID CLEANSING CREAM AND HAND LOTION*

The high percentage of triethanolamine soap used in this liquid cleansing cream serves to emulsify completely the white mineral oil and lanolin, aids their penetration into the pores of the skin, and produces a cream that cleanses the skin yet is readily removed with water. Because of the high lanolin and propylene glycol content of this cream, it can be used as a hand lotion and "all-purpose" cream, as well as a cleansing cream. The lanolin is especially soothing to chapped or dried skin and, though the cream requires more massaging than some hand lotions to rub into the skin and eliminate stickiness, the softening and healing of the skin compensates for the extra time required for application of the cream.

	lb.		lb.
Stearic Acid	25	Triethanolamine	9½
White Mineral Oil	57	Propylene Glycol	75
Anhydrous Lanolin	34	Quince-Seed Mucilage	19
Terpineol	⅓	Water	315

Melt the stearic acid in the mineral oil, add the lanolin and terpineol, and bring the temperature of the solution to 70°C. In a separate container, bring the solution of the triethanolamine in the water to 70°C. Add the hot oil mixture to the heated amine solution and stir vigorously until a good emulsion is formed. Add the quince-seed mucilage, made by adding 9½ ounces of quince seed to 20 pounds of water at 80°C., soaking overnight, and then straining through a cloth. A suitable preservative should be added to the quince-seed mucilage to prevent its molding.**

* Courtesy of Carbide and Carbon Chemicals Co.

** The mucilage can then be stored for use as needed. Moldex is an excellent preservative for cosmetics, textile preparations, adhesives, paper compounds, leather finishes, etc. When a cosmetic preparation contains animal or vegetable waxes, oils, gums, etc., emulsified with water, the addition of a preservative to prevent mold growth is essential. Moldex is a parahydroxybenzoic acid derivative and is generally used in the proportion of 18 ounces to 100 gallons of the finished cream. It should be dissolved by means of heat in the water called for in the formula.

Mix the perfume in the propylene glycol and stir this solution into the cream when it has cooled to about 50°C. The stirring should be fast enough to keep the cream mixed but not to aerate it. Continue stirring at low speed until the emulsion has cooled to room temperature. If the cream is allowed to cool without stirring, it will thicken on standing a few days.

The mineral oil can be replaced in its entirety or in part with a vegetable oil, such as olive or sweet-almond oil. The lanolin content can be decreased slightly where these oils replace some of the mineral oil.

Cellosize hydroxyethyl cellulose has been found to be an excellent thickening and stabilizing agent for liquid creams. It requires no preservative or special preparation. A dispersion of karaya gum or sodium alginate may also be used in place of the quince-seed mucilage. A dispersion of desirable consistency, and with the slippery feel of the quince-seed mucilage, can be prepared by stirring $\frac{1}{2}$ pound of sodium alginate into 50 pounds of hot water containing 1 pound of triethanolamine. The alginate is added slowly, with rapid stirring, until a smooth dispersion is obtained. A preservative should be added to the dispersion. Karaya gum can be dispersed in a similar manner, but the dispersion is thinner, so that less water should be used with this gum.

EMOLLIENT CREAM*

An emollient cream is formulated similarly to a cold cream except that skin softening agents, such as hydrogenated vegetable oil and lanolin, are used in place of part of the mineral oil. The following formula is typical.

	%		%
A. Beeswax	10.0	Tween 60	2.0
Mineral Oil	20.0	Antioxidant	0.5
Lanolin	3.0	B. Water	33.8
Hydrogenated Vegetable		Borax	0.7
Oil	25.0	Preservative	sufficient
Arlacel 60	5.0	C. Perfume	sufficient

Heat A to 70°C. Heat B to 72°C. Add B to A with rapid agitation at first and, when emulsified, agitate moderately. Perfume at 45°C. and pour at 35°C.

* Courtesy of Atlas Powder Co.

FACIAL CREAM

(Finest)

Yellow Ceresin	2 oz.	White Mineral Oil	8 fl. oz.
Yellow Beeswax		Water	6 fl. oz.
No. 1	2 oz.	Borax	120 gr.
Stearic Acid	2 oz.	Triethanolamine	1½ fl. oz.
White Petrolatum	4 oz.	Perfume	to suit

Melt the ceresin, beeswax, petrolatum, stearic acid and white mineral oil together, heating to 160°F. Dissolve the borax in the water by means of heat, and add the triethanolamine to the solution, bringing the temperature to 160°F. Pour the water solution all at once into the melted wax mixture and stir thoroughly. Remove from the fire and continue stirring thoroughly until it begins to thicken; then add the perfume and mix well. Pour into jars, leaving the lids off until the cream is completely cold. From 6 to 8 ounces of good artificial rose oil to each 100 pounds of cream will give a pleasing odor.

This fine cream is intended for regular use as a powder base as well as a massage and night cream. It is entirely harmless to the skin and relieves roughness, redness, and chapping, and will keep the skin smooth and soft.

ABSORPTION-BASE CREAMS

Absorption-base creams are coming to the fore because of their beneficial effect on the skin due to their cholesterin and oxysterin content.

Parachol is a highly refined absorption base that is used in producing high-grade creams which are pure white—not yellow like many other creams and which are also free from the objectionable lanolin odor. Such creams do not dry out and will not corrode metal containers. The following formula may be used as a starting point. For special purposes, sulfur, bismuth subnitrate, mercury salts, titanium dioxide, salicylic acid, thymol or other substances may be introduced.

ABSORPTION-BASE CREAM

	lb.		lb.
a. Parachol	10	Mineral Oil	10
Parasterin	20	b. Water	25

Heat *a* on a water bath till melted, allow to cool to 45–47°C. Warm *b* to 45–47°C. and add slowly in seven or eight portions to *a*; stirring vigorously; do not add more water until the previous portions are absorbed.

VANISHING CREAMS

Vanishing creams are essentially stearic acid soaps with excess stearic acid dispersed in water. The pearliness or silkiness desired is due to the crystallization of the stearic acid. In most cases, this crystallization requires a few days' time and the cream should be stirred for 5 or 10 minutes every day until crystallization begins. The cream can then be packed and pearliness will develop in the jar.

The old methods of preparing vanishing creams with caustic potash and ammonia very often yield nonuniform products which dry out rapidly and are irritating because of the presence of these alkalies.

With a new synthetic chemical, Deramin, uniform creams can be obtained which are nonirritating and free from alkalies. Vanishing creams made with Deramin are soft and silky. They rapidly show the pearliness which is so important in creams of this type. Where harder creams are desired, Trikalin and Polycol can be added in accordance with the following formula.

Formula No. 1

	Parts by Weight		Parts by Weight
Stearic Acid	20	Water	70
Carbowax 1000 Monostearate	5	Polyethelene Glycol Monostearate	5

A strongly hydrophilic ester is used to emulsify the stearic acid. The addition of the polyethelene glycol monostearate to the aqueous portion increases emolliency and consistency.

An astringent cream, similar in composition to the vanishing cream of formula No. 1 can be made by adding 3% of aluminum sulfate.

Formula No. 2.

Stearic Acid	25 oz.	Water	60 fl. oz.
Anhydrous Lanolin	9 oz.	Potassium Carbonate	2 oz.
White Mineral Oil	19 fl. oz.	Perfume	1½ oz.

Melt the stearic acid and anhydrous lanolin with 40 fluid ounces of water and add the white mineral oil. Dissolve the potassium carbonate in the remainder of the water and stir this solution into the melted mixture. Use a large enough container that the mixture will not foam over. Continue to stir until the foam subsides; then remove from the fire and

stir until it thickens, keeping the sides of the container well scraped down during the stirring. When cool, add any desired perfume.

This formula yields a superior cosmetic preparation. It rubs perfectly dry without rolling and will not soil clothing. It may be used on harsh dry skins without the slightest drying effect or irritation. It is unsurpassed for softness and delicacy of appearance as well as effectiveness and satisfaction in use.

SOFT VANISHING CREAM

Triple-Pressed		Water	15 pt.
Stearic Acid	6 lb.	Perfume	to suit
Deramin	1¼ lb.		

Heat the Deramin and water to 175°F. Melt the stearic acid and add the Deramin solution to the melted acid slowly, while stirring rapidly for a few minutes until emulsification is complete. Allow to cool, while stirring slowly. When the temperature has fallen to 130°F; add the perfume and stir intermittently at low speed until cold. Allow to stand for a few days, stirring slowly for a few minutes at least once a day. Pack in airtight jars.

MEDIUM VANISHING CREAM

Triple-Pressed		Trikalin	9 oz.
Stearic Acid	6 lb.	Polycol	15 oz.
Deramin	12 oz.	Water	144 oz.

Prepare the preceding formula dissolving the Deramin, Trikalin and Polycol in the water used.

HARD VANISHING CREAM

Triple-Pressed		Polycol	5 lb. 1 oz.
Stearic Acid	24 lb.	Water	96 lb.
Trikalin	4 lb. 7 oz.		

Use the method as before, dissolving the Trikalin and Polycol in the water used.

These vanishing creams may be modified by replacing up to 15% of the stearic acid by Glycostearin to get a smoother, less pearly cream.

To produce a nourishing cream effect, a small part of the stearic acid may be replaced by Parachol or lanolin. If 1% of titanium dioxide is ground into the cream (it is best to grind this into a small amount of

the finished cream and then grind the mixture into the balance of the cream.) a whitening effect is produced on dark skins.

VANISHING CREAM

	lb.		lb.
<i>a.</i> Anhydrous Ammonium		<i>b.</i> Glycopon S	5
Stearate	5	Water	70
Stearic Acid	15	<i>c.</i> Perfume	to suit
Cocanut Oil	5		

Melt *a* at 160°F. and stir clear. Heat *b* to the same temperature and add to *a* slowly, with thorough agitation. Add *c* at 130°F. It can be poured warm but it is better when packed cold.

NONPEARLY, LOW-PRICED VANISHING CREAM

Glycostearin	10 lb.	Mold Inhibitor	2 oz.
Water	12½ gal.	Perfume	to suit

Heat the Glycostearin, water and mold inhibitor together and stir until the Glycostearin is melted. Continue stirring while cooling. Add the perfume at 130°F. Pack cold.

This gives a smooth, nonpearly, nonalkaline cream which is very stable. If desired, a little glycerin or Polycol can be added for increased softening effects.

MENTHOLATED LEMON VANISHING CREAM

Stearic Acid	1 lb.	Powdered Borax	¼ oz.
White Beeswax	2 oz.	Menthol	2 oz.
Glycerin	4 pt. 6 oz.	Terpeneless Imitation	
Ammonia Water (26°)	2 oz.	Lemon Oil	2 oz.
Warm Water	4½ pt.		

Melt the first three ingredients in a large double boiler or on a water bath, or carefully in a large vessel on open fire. When the waxes are melted, add the ammonia water. Stir for about 10 minutes to get a good saponification; then add to this mixture, a solution made of the borax and warm water. Stir again vigorously for 10 minutes, let cool, and let stand for 10 minutes then stir in a mixture of the menthol and lemon oil. Mix well and let stand 24 hours to shrink before putting into jars or tubes.

This cream leaves the skin smooth and refreshed. It is an ideal powder base cream.

MENTHOLATED SOLID MASSAGE CREAM

(Cake Form)

White Ceresin	1 lb.	Benzaldehyde	10 drops
White or Yellow Beeswax	1/2 lb.	Rose Geranium Oil	1 fl. dr.
Cocoa Butter	1/4 lb.	Terpineol	1 fl. dr.
White or Yellow Petrolatum	3/4 lb.	Menthol	1/2 oz.

Melt the waxes with the petrolatum and add the cocoa butter. As soon as the cocoa butter is melted remove from the fire and add the menthol. Stir until it begins to thicken; then add the benzaldehyde, rose geranium oil, and terpineol.

Pour into molds of any desired shape and size.

If white petrolatum and white beeswax are used, the product will be almost white. If yellow petrolatum and yellow beeswax are used it will be of a yellowish color. If a yellowey tint is wanted, add a few drops of ordinary liquid butter coloring to the melted mixture.

The consistency of this product will depend entirely on the proportion of waxes and petrolatum used. It should be just firm enough to retain its shape without being too hard to rub off readily on the skin.

For a lemon-scented product, omit the scenting oils mentioned and perfume with 1/4 fluid ounce of oil of lemon.

Directions for use: First wash the face with a little warm water and a mild soap, drying thoroughly. Then rub the cake over the face until it is lightly covered with the cream. Massage lightly with the fingertips for a few minutes. Remove any excess with a soft cloth or facial tissue.

BRUSHLESS SHAVING CREAM

Parts by Weight		Parts by Weight	
Triple-Pressed		Polyethylene Glycol	
Stearic Acid	16.0	Monostearate	3.2
White Mineral Oil	4.0	Potassium Hydroxide	0.8
Anhydrous Lanolin	3.5	Propylene Glycol	4.0
Terpineol	0.1	Water	68.1

Melt the stearic acid, mineral oil, lanolin, and monostearate; heat to 60°C. and add the terpineol. In a separate container, add the potassium hydroxide to the water and heat to 60°C. Add the water solution to the oil solution, or vice versa, and stir until a smooth emulsion is formed.

Add the propylene glycol and continue stirring slowly, but contin-

uously, until a smooth, viscous cream is obtained. Then stir at intervals until the cream has cooled to 30 to 35°C. The cream should be covered when not being stirred and rapid stirring should be avoided after the emulsion has begun to thicken to prevent undesirable aeration of the cream. When the cream has cooled to about 35°C., add the perfume.

The cream can be packaged when it has cooled to about 32°C. A softer cream is obtained when it is allowed to stand overnight before packaging.

LATHERING SHAVING CREAM

	oz.		oz.
A. Mineral Oil	2	Caustic Soda	
Edible Tallow	4½	(36° Bé.)	11½
Stearic Acid	10	C. Water	23
Cochin Cocoanut Oil	5	Boric Acid	1¼
Glyco Wax A	½	Glycopon AAA	2
B. Caustic Potash		D. Stearic Acid	10
(36° Bé.)	17	E. Perfume	⅓

Heat A until melted and keep melted. Heat C until dissolved; then cool. Add B to C and stir; then add this to A slowly, with good stirring, keeping the batch hot on a steam bath; continue stirring until homogeneous. Keep hot and allow to stand covered for 30 minutes. Stir for 5 minutes. Melt D in a separate pot and run it into the batch, with good stirring; allow to stand covered for 30 minutes; remove from the steam bath and stir until thick; add E when almost cold and stir thoroughly. Allow to stand covered for a week or 10 days, stirring each day for 5 minutes.

This gives a profusely lathering cream comparable with the best creams on the market. It gives a thick, rich, nondrying lather of the small-bubble type, which softens the beard quickly and contains no uncombined alkali, making it nonirritating to the skin. This cream is pearly and the pearliness increases with age.

BRUSHLESS SHAVING CREAM

	oz.		oz.
A. Glycostearin	14	C. White Mineral Oil	1
B. Triple-Pressed		D. Glycopon AA	5
Stearic Acid	6	E. Water	74

Melt A, B and C together (to 80°C.). Heat D and E together at 85°C. and run into the first melt, with high-speed mixing. Continue mixing at high speed until the temperature drops to 50°C. Add perfume oil, menthol or methyl salicylate and mix until uniform.

BRUSHLESS SHAVING CREAM

	lb.		lb.
A. Mineral Oil	10	C. Water	50
B. Glycosterin	10	Perfume	to suit

Heat A and B to 150°F. and stir C into the mixture heated to 150°F. slowly. Stir in at 105°F. a little perfume and menthol and continue stirring until cold.

HAND CREAMS

Hand creams are greaseless creams which contain a much larger proportion of glycerin than usual, sometimes as high as 16%. Glycerin, in these quantities, has a temporary whitening effect on the skin, presumably due to constriction of the skin capillaries. Titanium dioxide is often incorporated to add to the whitening effect. Cetyl alcohol or other cetyl derivatives have a definite place in this type of cream to give a velvety feel and to counteract roughness of the hands.

HAND CREAM

	Parts		Parts
Cetyl Alcohol	1.0	Titanium Dioxide	1.0
Stearic Acid	5.0	Preservative*	1.0
Aldo 28	12.0	Perfume	0.4
Glycerin	12.5	Water	68.0

All of the ingredients, except the titanium dioxide and the perfume, are heated together to 90°C. and stirred until a homogeneous mixture results. The titanium dioxide is ground thoroughly with a small portion of the cream taken from the batch, and this is then stirred into the rest. The titanium dioxide is used to make the cream opaque rather than translucent and may be omitted or its quantity increased as desired. The perfume is added when the temperature drops to about 45°C.

This type of cream does not have the sharp alkaline reaction of stearate-soap hand creams which may cause irritation of sensitive skins. It will not develop an unpleasant odor after being applied to the skin.

* See SOURCES OF SUPPLY.

HAND PROTECTIVE CREAMS*

These creams are used as filming agents to resist penetration of paint, grease, and dirt into the skin and yet allow ready removal of film and dirt from the hands by washing with water. Formula No. 1 is quite viscous while No. 2 and 3 are liquids.

	Parts by weight		
	<i>Formula No. 1</i>	<i>No. 2</i>	<i>No. 3</i>
Triple-Pressed Stearic Acid	50.0	8.5	4.0
Carbowax Compound 1500	60.0	—	4.5
Polyethyl Monostearate	—	4.3	—
Anhydrous Lanolin	20.0	1.0	1.5
Terpineol	0.3	0.1	0.1
Triethanolamine	4.0	—	—
Potassium Hydroxide	2.0	0.5	0.2
Propylene Glycol	36.0	5.0	7.4
Cellosize WSLM	45.0	15.0	7.0
Perfume	0.8	0.4	0.4
Zinc Stearate	21.0	—	1.6
Water	200.0	65.2	73.0

A paddle-type stirrer is preferred for Formula No. 1 to prevent aeration; but a higher-speed, mechanical mixer can be used to make the liquid creams (formulas No. 2 and No. 3).

Melt the stearic acid, Carbowax, monostearate, and lanolin and bring the temperature to 70°C. Add the terpineol. Dissolve the potassium hydroxide in about an equal weight of water, add this solution and the triethanolamine (where used) to the melt, and stir until most of the soap is in solution. Bring the temperature to 70°C. Heat the water to 70°C. and stir into the mixture or stir the mixture into the water, if more convenient. Continue stirring until a homogeneous mixture is obtained. Add the propylene glycol and Cellosize and continue stirring slowly until the cream has cooled to about 40°C. Stir in the zinc stearate and the perfume.

The cream can be packaged at 40°C. as it has a better consistency than when allowed to cool to room temperature before packaging. The liquid creams (Formulas No. 2 and 3) should be stirred slowly, but continuously, until cooled to room temperature to prevent increased viscosity

* Courtesy of Carbide & Carbon Chemicals Co.

on standing. The stirring of any of the creams should be fast enough to maintain thorough mixing without aerating the cream.

The creams develop a pearly texture on standing. The lanolin content may be decreased or omitted to increase the pearly texture.

DEODORANT CREAMS

Acid aluminum salts, such as the sulfate, chloride, and phenol sulfonate, when applied in solution to the skin, act as astringents and stop or retard the flow of perspiration. The development of the fatty acid esters has made possible the introduction of these highly acid aluminum salts into emulsions, such as creams and lotions. Earlier, the addition of even a slight amount of such salts to the conventional emulsions made with soaps destroyed the emulsion.

DEODORANT CREAM

	Parts		Parts
Spermaceti	5	Glycerin	10
Aldo 33	15	Aluminum Sulfate NF	25
Sodium Lauryl Sulfate	2	Water	42
Titanium Dioxide	1		

The Aldo 33, spermaceti, glycerin, sodium lauryl sulfate, and water are heated together to about 70°C. Stirring is started and continued until a homogeneous cream results. The aluminum sulfate and titanium dioxide are slowly worked into the emulsion and the entire mass is passed through a roller mill keeping the temperature above 45°C. until a smooth, gritless cream results. The consistency may be modified by changing the proportions of water and spermaceti. Perfume and preservative are added in the usual way. (The perfume is added when the temperature drops to about 45°C.) In order to protect clothing, which has come into contact with creams containing aluminum salts, from deterioration during the laundering process, it is customary to include in the formula buffering substances, such as urea.

Creams which depend on the checking of perspiration because of their content of an astringent have large sales. However, since they may irritate the skin and harm clothing, deodorants which are not antiperspirants are becoming increasingly popular. The basic ingredient of these is hexachlorophene which works by inhibiting the growth of skin bacteria and thus preventing the putrefaction of skin excreta which is the major cause of skin odors. The creams are nonirritating and do not harm fabrics. Their formulation is based on simple greaseless creams and lotions.

SOLID COLOGNES, STICK DEODORANTS, AFTERSHAVE STICKS

Solid colognes, aftershave sticks, and stick deodorants are becoming increasingly popular. They are usually alcoholic solutions of the active ingredients solidified with soap. In addition to the soap and alcohol, a solid cologne might contain perfume and coloring, while a stick deodorant might contain an active ingredient such as hexachlorophene together with a very small amount of perfume. A solid aftershave stick might contain menthol, for added cooling effect, and perfume, along with the soap and alcohol.

The following formula is a typical solid cologne formula which may be modified for use as a deodorant stick or solid aftershave stick. The gelling agent in most solid colognes is sodium stearate and the gelling agent in the formula listed is the sodium soap of Hystrene T-70 stearic acid. Because Hystrene T-70 contains only 1.0% or less oleic acid and about 70% stearic acid, the soap derived from it (mostly sodium stearate, and little sodium oleate), has better gelling properties than a soap derived from a triple-pressed acid which contains about 3-5% oleic acid and 45% stearic acid. A nonvolatile humectant, Sorbo, is included to prevent too rapid drying of the film applied to the skin.

SOLID COLOGNE*

	%		%
A. Hystrene T-70		B. Sodium Hydroxide	0.64
Fatty Acid	5.00	Water	5.00
Sorbo	2.00	C. Perfume	to suit
Alcohol	87.36		

Heat A to 65°C. and B to 70°C. Add B to A with agitation. Add the perfume at 55° to 60°C. Pour into heated molds. Cool slowly to prevent formation of air pockets. Wrap in foil and package in airtight containers.

* Courtesy of Atlas Powder Co.

DEODORANT STICK

The following two formulas are modifications of the solid cologne formula.

	%		%
A. Hystrene T-70		B. Sodium Hydroxide	0.64
Fatty Acid	5.00	Water	5.00
Sorbo	2.00	C. Hexachlorophene	2.00
Specially Denatured		D. Perfume	as desired
Alcohol	85.36		

Heat A to 65°C. Heat B to 70°C. Add B to A, with agitation. Then add C. Add perfume at 55 to 60°C. Pour into heated molds. Cool slowly to prevent formation of air pockets. Wrap in foil and package in airtight containers.

AFTERSHAVE STICK

	%		%
A. Hystrene T-70		B. Sodium Hydroxide	0.64
Fatty Acid	5.00	Water	5.00
Sorbo	2.00	C. Menthol	0.10
Alcohol	87.26	D. Perfume	to suit

Heat A to 65°C. and B to 70°C. Add B to A, with agitation. Then add C. Add the perfume at 55° to 60°C. Pour into heated molds. Cool slowly to prevent formation of air pockets. Wrap in foil and package in airtight containers.

STICK COLOGNE

	oz.		oz.
Stearic Acid	4½	95% or 70% Alcohol	95
Sodium Carbonate	½	Perfume Oil	1

Melt the stearic acid, sodium carbonate, and alcohol carefully on a water bath, for one hour with slow stirring. Add the perfume and pour into molds.

DEODORANT CREAM

A deodorant cream is usually based on stearic acid and contains, as an effective ingredient, some agent which prevents or inhibits growth of the bacteria which cause decomposition of the excretions of the sweat glands. The formula listed contains hexachlorophene as the effective ingredient.

	%		%
A. Hystrene T-70		B. Sorbo	3.0
Fatty Acid	15.0	Potassium Hydroxide	0.7
Tween 60	1.0	Water	76.3
Arlacel 83	2.0	Preservative	sufficient quantity
Hexachlorophene	2.0		

Heat A to 90°C; B to 95°C. Add B to A, with agitation. Continue stirring to the set point. Stir by hand to room temperature. Package.

CHOLESTEROL HAIR-TREATMENT CREAM

Modulan is a chemically treated lanolin containing all the constituents of lanolin deliberately modified by a unique treatment to introduce new and valuable properties. It shows various advantages of lanolin, but lacks many of its undesirable features.

	Parts		Parts
Modulan	3.5	Mineral Oil (70 viscosity)	8.5
Amerchol L-101	9	Glycerin	4.5
Self-Emulsifying Glyceryl Monostearate	13.5	Water	59.5
Spermaceti	1.5	Perfume and Preservative	to suit

Heat the fat and water-soluble ingredients in separate vessels to 90°C. Add the aqueous solution to the fats, while agitating slowly, and continue mixing until the batch cools. Where alcohol is called for, it should be added at approximately 45°C. along with the perfume.

This hair treatment helps keep the hair in place, relieves dryness, and removes loose dandruff.

ANTISEPTIC, ANTI-DANDRUFF SOLID HAIR DRESSING CREAM

Stearic Acid	2 lb.	Water	1 gal.
White Mineral Oil	2 pt.	Powdered Castile Soap	1/2 oz.
Potassium Carbonate	1 1/4 oz.	Oxyquinoline Sulfate	60 gr.
Borax	1/2 oz.	Perfume Oil	to suit

Melt the stearic acid in the white mineral oil and 1/2 gallon of water, heating to 160°F. Dissolve the potassium carbonate, borax, and powdered castile soap in 3 pints of water by means of heat. Dissolve the oxyquinoline sulfate in the remaining pint of water.

Have the potassium carbonate-borax-soap solution at 160°F. and add slowly to the stearic acid-mineral oil-water mixture, stirring constantly to prevent excess frothing. Remove from the fire and stir in the oxyquinoline sulfate solution. Beat with an egg beater until it begins to thicken; then add the perfume oil, continuing to beat until it forms a smooth firm cream. Fill into jars when cold.

Keep the sides of the container well scraped down while beating to avoid the formation of small grainy lumps.

Directions for use: Rub well into the hair and scalp, continuing to

rub until the cream disappears and the hair is nearly dry; then comb the hair.

This cream has antidandruff and antiseptic properties.

HAIR-CONDITIONER CREAMS*

These liquid-cream preparations condition and groom the hair without imparting an oily appearance. They can be readily removed with water, so that they do not leave insoluble stains on fabrics.

	Formula	
	No. 1	No. 2
	lb.	lb.
Polyethylene glycol 400 Monostearate	5.00	—
Polyethylene glycol 600 Distearate	—	1.35
Carbowax 1000 Distearate	—	1.35
Anhydrous Lanolin	1.00	0.50
Triple-Pressed Stearic Acid	—	1.35
Terpineol	0.05	0.05
Potassium Hydroxide	—	0.05
Propylene Glycol	2.00	2.00
Cellosize WSLM	—	3.00
Water	91.60	90.00
Perfume	0.35	0.35

For formula No. 1, melt the monostearate and lanolin, add the terpineol, and bring the temperature to 60°C. Heat the water to 60°C. and add it quickly, all at one time, using mechanical agitation. Add the propylene glycol and stir continuously, but slowly to prevent aeration, until the cream cools to room temperature. When the cream is at 35° to 40°C., add the perfume.

For formula No. 2, melt the stearic acid, the distearates, and lanolin together and bring the temperature to 60°C. Add the terpineol. Heat half of the water to 60°C., add the potassium hydroxide, and add this solution quickly, all at one time, to the melt, using mechanical agitation.

Add the propylene glycol and then the Cellosize. Stir continuously, but slowly, until the cream cools to 30 to 35°C. when the perfume is stirred in.

* Courtesy of Carbide and Carbon Chemicals Co.

Add the rest of the water and continue stirring until the cream cools to room temperature.

LIQUID HAIR-DRESSING CREAM

White Mineral Oil	1 gal.	Karaya Gum	2 oz.
Purified or Medicinal		Oxyquinoline Sulfate	1/4 oz.
Grade Oleic Acid	16 fl. oz.	Water	4 gal.
Triethanolamine	8 fl. oz.	Perfume	to suit

Mix the oleic acid with $\frac{1}{2}$ gallon of the white mineral oil, stirring until completely uniform. To this mixture, add the triethanolamine and continue to stir until a clear viscous mixture is formed. Then stir the remaining $\frac{1}{2}$ gallon of white mineral oil into the mixture. Soak the karaya gum overnight in 1 gallon of cold water in which the oxyquinoline sulfate has been dissolved. In the morning, stir until it forms a perfectly even mixture. Stir the gum solution into the oleic acid-triethanolamine mixture. A white emulsion will immediately form. Agitate thoroughly to form a perfectly smooth emulsion.

Then add the remaining 3 gallons of water gradually, with constant agitation, to the heavy emulsion first formed. This amount of water may be added without any danger of the emulsion separating on standing. Less water may be added if a heavier product is desired. The karaya gum is added as a stabilizer for the emulsion, and the oxyquinoline sulfate as an antiseptic and antidandruff ingredient.

Perfume to suit with any scenting oil, using just enough to give the scent desired. About 2 ounces of perfume oil to 5 gallons of finished product will be sufficient.

Either the medicinal grade of white mineral oil or a technical grade, such as is used in the manufacture of cold creams, may be used.

A homogenizer or an electrically driven agitator should be used for mixing.

This liquid cream, which shows antiseptic and antidandruff properties, is used as a hair dressing to keep the hair neat and well groomed, and also to manage dry, unruly hair and to eliminate dandruff.

Directions for use: Shake a little on the palm of the hand and rub thoroughly through the hair, massaging the scalp gently with the fingertips at the same time. Comb the hair as usual, or brush down flat. Shake well before using.

HAIR-DRESSING CREAM*

The newer types of hair dressing creams contain a high percentage of lanolin and petrolatum. The following formula is typical.

	%		%
A. Petrolatum	15	Tween 60	5
Mineral Oil	10	B. Borax	1
Lanolin	20	Water	32
Beeswax	12	Preservative	sufficient
Span 60	5	C. Perfume	to suit

Heat A to 70°C. and B to 72°C. Add B to A slowly, with agitation. Cool with agitation until the cream sets up. Perfume at 45°C. and agitate until cold. Pack in jars.

* Courtesy of Atlas Powder Co.

HAIR POMADE

	Parts		Parts
Petrolatum	16	Water	16
White Wax	4	Perfume Oil	1/4
Paraffin	4	Water-Soluble Color	to suit
Borax	1/8		

Melt the waxes and petrolatum on a water bath; dissolve the borax in hot water. To saponify, add the warm borax solution to the waxes. Add the water-soluble color to the water before saponifying. The quantity of paraffin may be increased or decreased according to the consistency desired.

HAIR-DRESSING LOTION*

	%		%
A. Petrolatum	7.5	Arlacel 83	2.0
Mineral Oil	37.5	B. Water	46.5
Beeswax	2.0	Preservative	sufficient
Atlas G-1425 Lanolin		C. Perfume	to suit
Derivative	4.5		

Heat A to 75°C. Heat B also to 75°C. Add B to A slowly, with moderate but thorough agitation. Perfume at 45°C. and agitate until cold.

* Courtesy of Atlas Powder Co.

SCALP LOTION
(So-Called Hair Tonic)

Formula No. 1

Resorcin	5 oz.	Water	4 gal.
Salicylic Acid	2 oz.	Brilliant Red Hair-Tonic	
Quinine Bisulfate	2 oz.	Color	to color
Fluid Extract of Sage	6 oz.	Perfume Oil	2 $\frac{1}{8}$ oz.
Fluid Extract of Pilocarpus	16 oz.	<div style="display: inline-block; vertical-align: middle;"> <div style="display: inline-block; vertical-align: middle;">{</div> <div style="display: inline-block; vertical-align: middle;"> Cologne Oil* 6 oz. Sandalwood Oil 1 dr. Cloves Oil 2 dr. Nutmeg Oil 30 min. Cinnamon Oil 15 min. Liquid Orris Oil 30 min. Artificial Rose Oil 1$\frac{1}{2}$ oz. </div> </div>	
Tincture of Cantharides	16 oz.		
Bay Rum	12 oz.		
Sodium Chloride	2 oz.		
Glycerin	12 oz.		
Alcohol USP	4 gal.		

Mix thoroughly.

Dissolve the glycerin in $\frac{1}{2}$ gallon of water. Dissolve the quinine in 1 gallon of water. Dissolve the resorcin in 1 gallon of water. Mix these three solutions together and add the remainder of the water. Dissolve the salicylic acid and sodium chloride in this mixture.

Mix all the other ingredients, except the coloring matter and perfume with about 3 $\frac{1}{2}$ gallons of the alcohol. Now slowly stir the water solution into the alcohol solution. Add the perfume mixed with the remaining $\frac{1}{2}$ gallon of alcohol and mix well. Let stand in a closed container for a week, then filter and add color to the filtered product to secure exactly the shade desired.

This antiseptic hair tonic is recommended for maintaining a healthy scalp, to help stimulate hair growth, and to check and help prevent dandruff and falling hair.

Apply to the scalp, massaging gently with the fingertips or a scalp brush.

* COLOGNE OIL

Bergamot Oil	20 fl. dr.	Oil of Lavender Flowers	400 min.
Lemon Oil	20 fl. dr.	Rosemary Oil	200 min.
Sweet-Orange Oil	20 fl. dr.	Alcohol	8 fl. oz.
Oil Petit Grain	14 fl. dr.		

Mix thoroughly.

Formula No. 2

Quinine Bisulfate	2 oz.	Menthol	2 oz.
Sodium Chloride		Alcohol	4 gal.
(Common Salt)	4 oz.	Fluid Extract of	

Cinchona Compound	4 fl. oz.	Water	to make 10 gal.
Tincture of Cantharides	12 fl. oz.	Perfume Oil	4 fl. oz.
Sulfonated Castor Oil	4 fl. oz.	Color	to suit
Glycerin	12 fl. oz.		

Dissolve the quinine bisulfate in 1 gallon of the water. Add the glycerin to 1 gallon of the water. Mix these two solutions and add the sulfonated castor oil. Add all the other ingredients except the sodium chloride to the alcohol and when dissolved add any perfume oil desired, stir the water solution into the alcohol solution. Add more water to make the total product measure 10 gallons and dissolve the sodium chloride in the mixture. Add color if desired. Let stand for a few days, with occasional stirring, then filter.

Any desired certified cosmetic or food color may be used to secure the color desired. As these colors are very powerful it is best to use them in the form of a solution made by dissolving 1 ounce of dry powder in 12 ounces of water by means of heat, adding 4 fluid ounces of glycerin. Strain this mixture and keep it as a stock coloring solution. Add drop by drop until the exact color wanted is obtained.

Use the grade of sulfonated castor oil which mixes to a clear solution with water. The quantity of oil may be increased if desired. However, an excess should be avoided as it will make the preparation too greasy.

The use of isopropyl alcohol instead of ethyl alcohol in preparations for external use, such as hair tonics, shampoos, liniments, etc., is permissible, but the label should state: "Contains . . . % Isopropyl Alcohol."

The perfume oil used in the preceding hair tonic formula produces a very refreshing odor and may be used in this formula if desired.

This tonic is intended for use as an aid in maintaining a healthy scalp, to help stimulate hair growth, and to check and prevent dandruff. Containing a vegetable oil, it helps to relieve dry scalp and keep the hair orderly.

It should be applied to the scalp once or twice a day, accompanied with gentle finger-tip massage or the use of a scalp massage brush.

Label caution: Contains cantharides which may be irritating.

HAIR-DRESSING LOTION

Excessive greasiness of hair dressings is largely overcome by the preparation of an emulsion in which water is a diluent for the oil.

HAIR-DRESSING EMULSION*

	%		%
A. Petrolatum	6.0	Tween 20	2.0
Mineral Oil	37.5	B. Borax	0.5
Lanolin	3.0	Water	35.0
Beeswax	12.0	Preservative	sufficient
Arlacel 83	3.0	C. Perfume	to suit
Arlacel 20	1.0		

Heat A to 70°C. and B to 75°C. Add B to A slowly, with agitation. Perfume at 45°C. and stir until cold.

* Courtesy of Atlas Powder Co.

STRINGY HAIR-WAVE FLUID

Ondulum is a newly developed edible gum which produces in water a clear transparent liquid with exceptional stringiness or length. This length can be reduced by the addition of small amounts of acids. Ondulum produces thick solutions in water and is of interest as a suspending medium for pigments, colors, abrasives and other substances insoluble in water.

As a hair-waving medium, its clarity and stringiness make it of considerable importance.

	oz.		oz.
Ondulum	6	Alcohol*	2
Glycerin*	3-4	Water	50-600

The Ondulum is first thoroughly wetted by the glycerin-alcohol mixture. Then the water, preferably warm, is added slowly, stirring thoroughly until completely dispersed. If less water is used, a jelly is formed which can be marketed as a concentrate.

In all cases, a preservative, such as mold inhibitor (See Sources of Supply), in the proportions of 18 ounces to 100 gallons of finished product should be added. The mold inhibitor can be dissolved by heating in the water.

* When used as medium for suspending pigments, the glycerine and alcohol may be dispensed with.

PERMANENT-WAVE LOTIONS

Permanent wave lotions essentially consist of strong alkali solutions in water. Their purpose is to soften the hair shaft, making it more flexible

so that it can be set in the desired manner. Naturally, there should be the minimum amount of deposit on the hair. Ammonia has, therefore, been used for this purpose for a considerable time. While it is true that the odor of ammonia is an undesirable feature, the advantage of using a volatile (quickly evaporating) product such as ammonia, far outweighs the disadvantages.

Nonammonia permanent wave lotions are free from the odor of ammonia prior to use. The ammonia is only developed on application. The use of oils in permanent-wave solutions tends to reduce excessive drying. Milky permanent-wave lotions are obtained by adding about 2 pounds of Milcol to 10 gallons of the regular formula.

GENERAL HOME-PERMANENT REFILL

	%		%
Ammonium Thioglycolate	28.0	Ammonium Hydroxide	7.3
	6.0	Distilled Water	86.7

A small amount of opacifying agent may be added.

Dissolve the ammonium thioglycolate in the distilled water and add the ammonium hydroxide.

Bottle in containers with plastic caps including complete directions for use on label or circular.

NEUTRALIZER POWDER FOR THE HOME PERMANENT

Sodium Perborate	11.5%	Disodium Phosphate	88.5%
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Mix the dry ingredients. Package in moistureproof envelopes with directions for use holding about $\frac{3}{8}$ ounce (about 3 drams) of powder.

Directions for use:

1. After shampooing hair, and when barely damp, divide into parts, wetting with the lotion, applying 2 x 3 tissue papers and then curlers under the papers, and winding by the customary method.
2. When the curlers are all set, wet with the balance of the lotion, then in about half an hour make the usual "curl trial test," to secure the proper wave.
3. Prepare the neutralizer solution by dissolving the contents of the envelope in 1 quart of *lukewarm water* with stirring. Leave the solution uncovered.

Rinse the hair thoroughly while still on curlers with clear *lukewarm water* for 2 or 3 minutes. Then pat dry with a towel over the curlers.

Three cups of neutralizer solution will be used in the first step while the fourth cup will be used later.

4. With a dab of cotton, saturate each curl thoroughly using *one cup of the solution*. Applying the solution over a large bowl will permit the drippings to be used over two or three times. Repeat the same treatment with the two other cups. The process of thorough neutralizing sets the wave for a longer period.
5. Unwind the curlers slowly and carefully and then pour the remaining *fourth cup* of the solution over the entire curled hair. Repeat several times, using the solution which has dripped into the bowl. Rinse the hair thoroughly with warm water, shampoo and set.

CAUTION: Do not use on an irritated scalp or if the skin on the hands is chapped, very sensitive, cut or sore. Keep both lotions away from the face, particularly the eyes, mouth, etc. Wash at once with water if the lotions are spilled on the skin, towels, clothing, etc. Cover the shoulders with a towel when applying the lotions. Keep out of reach of children and avoid possibility of taking internally.

HAIR-SETTING LOTIONS

Hair setting lotions, also known as wave sets and finger-waving lotions, consist essentially of vegetable gum solutions in water. While quince-seed mucilage is the oldest of this type of preparation, it is difficult to make and the process is somewhat lengthy. Furthermore, special effects are often desired which are not given by the regular quince-seed solutions.

A vegetable product which overcomes a number of these disadvantages is gum karaya. However, gum karaya, while giving a clear solution in water, has a tendency to dry white and powdery on the hair. The use of a *transparentizing* agent is, therefore, necessary. Glycomel gives excellent results. In order to speed up drying, a little alcohol or Isohol is incorporated into the formula. Aquaresin G.M.C. is suggested both as a *transparentizing* agent and for the prevention of caking in the manufacture of concentrated hair-wave solutions. Where *stringiness* or *length* is required, the use of Ondulum, a processed vegetable gum, is suggested. In all cases where vegetable gums are used, a preservative is essential, such as Moldex in the proportion of 18 ounces to 100 gallons of finished lotion.

Recently, a new type of hair-setting lotion has found considerable favor. As it consists chiefly of a harmless, colorless and odorless inorganic base, it requires no preservative and will keep indefinitely with-

out changing color or form. This substance, known as Abopon, dissolves readily in hot water, forming colorless solutions which dry in about one half the time necessary for ordinary hair-setting lotions.

It must again be emphasized that requirements vary considerably and, therefore, experiments on a small, laboratory scale are necessary in order to determine whether a particular formula meets such requirements.

HAIR-SETTING FLUID

(Dries Quickly and Leaves no Visible Residue)

	lb.		lb.
Glycomel	5	Formaldehyde	1
Isohol	20	Lilac Oil	3
White Karaya Gum	5	Water	908

Mix together all ingredients except the water. Pour slowly into 454 pounds of the water, while stirring thoroughly until all particles are dispersed. This gives a concentrate. To make a finished product for use on the hair, stir into the balance of the water. If a colored product is desired, a little spirit-soluble aniline green is added to the first solution.

HAIR-SETTING FLUID CONCENTRATE

In making concentrated hair-wave sets with gum karaya, the gum is first ground with an equal amount of Aquaresin G.M.C. and then suspended in alcohol to avoid caking or lumping.

	oz.		oz.
Gum Karaya	1	Alcohol	16
Aquaresin G.M.C.	2	Perfume and Color	to suit

This concentrated product can be poured slowly into water, with stirring, without lumping to form a good product which will leave no visible residue and impart a soft feel and glossy sheen to the hair.

HAIR-SETTING FLUID

Abopon	2-3 oz.	Glycerin	1/4 oz.
Water	1 gal.		

Dissolve the abopon by means of heat in the water containing the glycerin. Stir until complete solution is obtained. Water-soluble perfume and color can be added as desired. The lotion obtained in this way is quick drying and leaves a clear transparent film on the hair. Being free from gums, it gives a free-flowing thin liquid in place of the heavy

mucilage obtained when gums are used. It requires no preservative and does not discolor with age.

PERMANENT-WAVING FLUID

Formula No. 1

Powdered Sodium Carbonate	8 oz.	Concentrated Ammonia (26°)	6 fl. oz.
Powdered Sodium Hyposulfite	6 oz.	Sulfonated Castor Oil	1 fl. oz.
		Distilled Water	to make 1½ gal.
		Perfume Oil and Color	to suit

Dissolve the sodium carbonate and sodium hyposulfite separately, each in 3 pints of water. Add the concentrated ammonia to the sodium carbonate solution. Then mix the two solutions and stir in the sulfonated castor oil, which has been previously mixed with the perfume oil. Color to suit with a trace of caramel or certified cosmetic color. Do not over-color.

This waving fluid is suitable for both spiral and croquignole waves. Contains no caustic alkalies and may be safely used on all colors and qualities of hair. Contains only a minimum of ammonia and is not objectionable to either the operator or the patron.

Formula No. 2

Triethanolamine	16 fl. oz.	Water	to make 1 gal.
Sodium Hyposulfite	6 oz.	Perfume	to suit

Dissolve the sodium hyposulfite in ½ gallon of water. Add the triethanolamine and then make up to 1 gallon with water. Add any desired perfuming oils.

This is an ideal product where a soft deep wave instead of a tight curl is wanted.

OILY PERMANENT-WAVE LOTION

Permosalt	1 lb.	Water	41 lb.
Sulfo Turk A	13 oz.	Ammonia (28°Bé.)	8 lb.

Stir the Permosalt in the water until dissolved, allow to stand overnight, and filter the next day. Then add the Sulfo Turk and Ammonia and mix.

PERMANENT WAVE LOTION

	lb.		lb.
Permosalt A	20	Water	100
Glycerin	1		

Stir till dissolved and filter the next day.

These lotions can be colored with water-soluble dyes which are stable to alkalis.

HAIR-WAVE SET

White Karaya Gum		Isopropyl Alcohol	12 fl. oz.
No. 1	$\frac{3}{4}$ oz.	Perfume	to suit
Salicylic Acid	$\frac{1}{2}$ oz.		

Mix the salicylic acid with the isopropyl alcohol. When dissolved, add the karaya gum and any desired perfume.

For use, pour the contents of a 12-ounce bottle into 1 gallon of cold water and let stand overnight. Any desired perfume may be added, about $\frac{1}{2}$ ounce being sufficient.

This wave set is an ideal finger-wave solution. It leaves no white deposit on the hair, dries quickly, and holds the wave longer than many others. It is entirely harmless to hair and scalp and will not turn sour or rancid.

The label should state: "Contains . . . % Isopropyl Alcohol."

KINK STRAIGHTENER

	Parts		Parts
Petroleum Jelly	14	Tallow	6
Beeswax	4	Paraffin	1
Castor Oil	2		

Melt on a water bath. When somewhat cooled, add $\frac{1}{8}$ part of salicylic acid and perfume to suit.

LEMON RINSE

Lemenone	3 oz.	Tartaric Acid	$4\frac{1}{2}$ lb.
Isohol	14 lb.	Water	16 lb.
Citric Acid	$3\frac{1}{2}$ lb.		

Dissolve the lemenone in the Isohol and add to it slowly, with stirring, the citric and tartaric acids which have been dissolved in the water.

HAND AND FACE LOTIONS

Hand and face lotions are fluid, milky emulsions, consisting chiefly of mineral and vegetable oils emulsified in water. Other substances are often added to the oil phase, such as lanolin, cetyl alcohol, beeswax, etc. The water phase can include glycerin, alcohol (or witch hazel), Glycopon S, etc. The essential features of such emulsions are stability (no oil sweating or water separation) and whiteness of the finished product. Many emulsions of this type, when freshly made, answer both these specifications perfectly. On standing, however, oil separation occurs or the original whiteness changes to yellow. It must be remembered that all emulsions, particularly of the fluid variety, are influenced by changes of temperature. They must never be subjected to excessive heat or excessive cold.

When an emulsion is frozen it generally *breaks* on thawing. This is particularly true of emulsions made with vegetable gums. Emulsions made with Glycoesterin and Trigamine Stearate remain white indefinitely and in many cases withstand fairly low temperatures to a considerable extent. In making emulsions of this type, rapid mixing is essential. This is obtained by a high-speed electric mixer with a propeller type agitator. Iron, lead, copper, and brass must be avoided both for the mixing kettle and the agitator shaft. Aluminum, Monel, stainless steel or enamel are suggested for this purpose.

The addition of a preservative (mold retarded) is advisable particularly where shelf life is an important factor.

Where the emulsion is to be colored with a water-soluble color, it is important to obtain colors with a low salt content as salt is detrimental to the stability of the emulsion.

FACE LOTION

Gum Tragacanth	½ oz.	Glycerin	12 fl. oz.
Quince Seed	2 oz.	Cologne	6 oz.
Boric Acid	1 oz.	Alcohol	8 oz.
Borax	8 oz.	Water	3 gal.
Distilled Extract of		Certified Red	
Witch Hazel	1 pt.	Cosmetic Color	to tint
Sodium Benzoate	4 oz.		

Rub up the boric acid with about 4 ounces of glycerin to a smooth paste. Then pour on 1 gallon of hot water; stirring until completely dis-

solved. By first mixing the boric acid with the glycerin it is made more soluble in water.

Put the gum tragacanth into a convenient vessel and pour on the boric acid solution. Let stand, with frequent agitation, until it is completely softened and mixes evenly with the liquid. Then strain. Dissolve the sodium benzoate in $1\frac{1}{2}$ gallons of boiling water, and after blowing all the dust out of the quince seed and rinsing with cold water, pour on this hot solution of sodium benzoate. Let stand until cold; then strain. Mix the tragacanth mucilage with the quince-seed mucilage and stir well; then add the remainder of the glycerin. Dissolve the borax in the remaining $\frac{1}{2}$ gallon of hot water and pour this into the mixture.

Mix the cologne water, alcohol and distilled extract of witch hazel and pour this into the mixture with constant stirring. Tint an attractive pink color with certified cosmetic color or solution of carmine. Strain through a cotton strainer and bottle.

A pleasing variation of this formula is made by using 12 ounces of magnesium sulfate (epsom salts) instead of boric acid. Made in this way, the lotion will leave a slight bloom or fine powder effect on the skin.

This lotion is recommended for chapped, rough, or irritated skin, hands or face; also for sunburn and windburn and for use after shaving.

HAND AND FACE LOTION

Quince Seed	$\frac{1}{2}$ oz.	Almonds	15 drops
Benzoic Acid	20 gr.	Oil of Rose Geranium	20 drops
Glycerin	5 oz.	Glycerite of Starch	$2\frac{1}{2}$ oz.
Bay Rum	6 oz.	Tincture of Benzoin	1 dr.
Phenol (Carbolic Acid) C.P.	1 dr.	Distilled Water	
Oil of Bitter		to make	48 oz.

Blow all the dust from the quince seed and rinse with cold water. Then pour over them 2 pints of boiling water. Let stand until cold; then strain through a cloth strainer. Add the glycerin to the mixture. Now mix a little of this mixture with the glycerite of starch, gradually adding more with constant stirring until the glycerite goes into solution. When all the liquid is in, dissolve the benzoic acid in the mixture; also add the phenol.

Mix the bay rum, oil of bitter almonds and the oil of rose geranium.

Then mix this with the distilled extract of witch hazel and gradually pour this mixture into the quince-seed mixture, with constant stirring. When it is all in, add enough distilled water to bring the volume up to 48 ounces. Then add the tincture of benzoin, all at once, and stir thoroughly.

Let stand for an hour or so; then strain through a cloth strainer and bottle.

For chapped, rough, or irritated skin, hands and face, for windburn and for use after shaving, rub in lightly.

HAND AND FACE LOTION

Extra Select		Oil of Rose	
Tragacanth Gum	2 oz.	Geranium	20 min.
Boric Acid Crystals	8 oz.	Cologne	4 oz.
Glycerin	1½ pt.	Distilled Extract of	
Alcohol	8 oz.	Witch Hazel	2 qt.
Oil of Lavender		Water	to make 2¼ gal.
Flowers	12 min.	Pink Lotion Color	as desired

Pour 1½ gallons of boiling water in which the boric acid has been dissolved over the tragacanth; add the glycerin and allow to stand 1 or 2 days. Then strain through cheese cloth, add the witch hazel, and lastly and slowly the oils and cologne mixed with the alcohol, with constant stirring. Color to a delicate pink shade if desired.

For chapped and roughened skin, sunburn, after shaving, etc., rub in gently.

HAND LOTION

	parts		parts
Modulan	2.0	Triethanolamine	1
Amerchol L-101	10.0	Ethyl Alcohol	4
Stearic Acid	2.5	Water	82
Glyceryl Monostearate	3.5	Perfume and Preservative	
Glycerin	5.0		to suit

Heat the fats and the water-soluble ingredients in separate vessels to 90°C. Add the aqueous solution to the fats, while agitating slowly, and continue mixing until the batch cools. The alcohol should be added at about 45°C. along with the perfume.

BALM-CREME LOTION

A. Lanolin	2 dr.	C. Sodium Benzoate	8 gr.
Aquaphor	3 dr.	Titanium Dioxide	2 dr.
Propylene Stearate	6 dr.	Tincture of Benzoin	60 min.
B. Boiling Water	10 oz.	Glycerin	1½ oz.
Triethanolamine	60 min.	Bentonite	1 dr.
		Water	to make 1 pt.
		Perfume Oil	Sufficient

Melt A in a double boiler. Add B and stir to a good emulsion. Then add C and run the whole mixture through a homogenizer. Let cool and then stir in the perfume oil. Let stand 24 to 48 hours to *shrink* before bottling.

This lotion is excellent for rough, dry skin, to soothe windburn and sunburn, after shaving and bathing, and may be used as a powder base. It rubs in without leaving a sticky after-use feeling.

SUNTAN AND INSECT-REPELLENT LOTION*

	%		%
A. Active Ingredient†	10.0	Tween 60	1.7
Mineral Oil	23.0	B. Water	60.6
Beeswax	1.0	Preservative	to suit
Arlacel 60	2.0	C. Perfume	to suit
Arlacel 83	1.7		

Add B at 85°C. to A at 80°C., with agitation. Perfume at 50°C. Stir until cold.

An emulsified suntan or insect repellent lotion, because it contains up to 50% water, is less oily than a nonemulsified preparation. Other advantages are that as the lotion is not readily dispersible in water, it remains on the skin even when the user is swimming or actively perspiring. In addition, the high oil content tends to keep the film on the surface of the skin longer by retarding adsorption.

* Courtesy of Atlas Powder Co.

† When used as a suntan lotion dipropylene glycol salicylate may be the active ingredient, while when used as an insect-repellent lotion dimethyl phthalate may be the active ingredient. If a combined suntan and insect repellent lotion is desired 5% of each may be used.

ALMOND-HONEY LOTION

Bitter Almonds	5½ lb.	Alcohol	2¾ gal.
Quince Seed	2 lb.	Distilled Extract of	
Boric Acid	1½ lb.	Witch Hazel	¾ gal.
Powdered Borax	7 oz.	Oil of Bitter Almonds	1 oz.
Dry White Soap	3 lb.	Extracted Honey	2 oz.
White Beeswax	3⅛ lb.	Glycerin	¾ gal.
Sweet Almond Oil	3⅛ lb.	Ultramarine Blue	30 gr.
Spermaceti	3⅛ lb.	Water	to make 25 gal.

On the day before making the lotion, soak the soap in 4 gallons of hot water. Add the borax to this solution. A cake of castile soap, shaved fine, makes the best product though powdered castile soap may also be used.

On the day before making the lotion, blanch the almonds by steaming for ½ hour; then remove the skins by rubbing with a stiff towel or by any other method. Dry thoroughly and crush fine. If powdered bitter almonds are available, these will serve the purpose and save the trouble of blanching. However, the so-called almond meal commonly sold is not suitable, as it seldom contains more than a small quantity of ground almonds.

Make an emulsion of the crushed almonds with 4 gallons of cold water. This is best done in a large mortar, using a pestle. Work with about ¼ of the quantity of almonds at a time, using one gallon of water with each lot, adding the water gradually and rubbing with the pestle until a fine white emulsion is produced. Finally strain to remove all bits of almonds from the emulsion.

Soak the quince seed and boric acid overnight in 5 gallons of warm water. In the morning, strain through two thicknesses of cheese cloth. Blow all the dust and dirt from the quince seed before soaking.

On the day finishing the lotion, weigh out the waxes and sweet-almond oil. The oil should be taken by weight and not by measure. Melt the beeswax, spermaceti and sweet-almond oil together, using very gentle heat, just enough to melt the waxes. Warm up the soap solution, making sure that the soap is thoroughly dissolved and bringing it to a gentle boil. Pour this hot soap solution slowly into the melted waxes and oil, stirring constantly, and put the whole into a mechanical mixer or good-sized churn. Beat or churn for 15 minutes. Then add the strained emulsion of almonds. Beat or churn 15 minutes more. Then add the glycerin, distilled extract of witch hazel, oil of bitter almonds, and alcohol, which have been previously mixed together. In mixing these, put the oil into the

alcohol and mix well. Then slowly stir in the witch hazel and when well mixed add the glycerin gradually with constant stirring. After adding this mixture, beat or churn again for 15 minutes.

Mix the ultramarine blue with 1 gallon of hot water; add this and again beat or churn thoroughly. Then gradually add warm water enough to make 25 gallons, about 1 or 2 gallons at a time, beating or churning well after each addition.

If desired, 1 ounce of oil of rose geranium may also be used as a scent. Dissolve it in the alcohol along with the oil of bitter almonds. This gives a pleasing rose-almond odor. The purpose of the ultramarine blue is to increase the whiteness of the product.

The quality of this lotion depends very largely on the care with which it is made. Close adherence to the directions, especially as regards the time of mixing, is essential to a fine product. It cannot be mixed too thoroughly. Lack of care in mixing may give a product which is off-color or which separates on standing.

Let the finished cream stand for 2 or 3 days; then strain through two or three thicknesses of cheese cloth and bottle for sale.

Dissolve the honey in the water, before putting it into the mixer or churn.

IMPORTANT NOTE: Put the borax into the soap mixture, when dissolving the soap.

When properly made, this formula produces a pure white cream, of a very fine odor, which gradually acquires a more or less pearly appearance on standing.

This lotion is soothing and healing and is recommended for chapped, rough skin on hands, face, etc. It is also beneficial for windburn, sunburn, and for use after shaving.

LEMON CREAM LOTION

Powdered Gum		Sodium Benzoate or	
Tragacanth	13 dr.	Formaldehyde	120 gr.
Tincture of Benzoin	3 oz.	Lemon-Yellow Food	
Alcohol U.S.P.	6 $\frac{4}{10}$ oz.	Color	to suit
Lemon Oil	$\frac{1}{2}$ oz.	Water	to make 1 gal.
Glycerin	1 pt.		

Mix the first four ingredients in a gallon bottle. Prepare the other ingredients separately and add them quickly, with vigorous shaking or stirring, to the first batch.

This greaseless lotion is recommended for chapped hands, face, lips, or any roughness of the skin arising from exposure. It softens and soothes the skin and is beneficial for sunburn as well as after shaving.

SKIN FRESHENER AFTER SHAVE LOTION

Formula No. 1

Glycerin	5 oz.	Distilled Extract of	
Boric Acid	4 dr.	Witch Hazel	to make 1 gal.
Menthol	1 dr.	Green or Yellow Certified	
Alcohol	20 oz.	Perfume Color	to suit
Eau de Cologne Oil*	6 dr.		

Dissolve the menthol in the alcohol and add the other ingredients. Mix thoroughly, let stand for a few days and then filter clear.

*EAU DE COLOGNE OIL

Lemon Oil	1 oz.	Rosemary Oil	1/8 oz.
Neroli Bigarade Oil	1 oz.	Lavender-Flower Oil	30 drops
Bergamot Oil	1/2 oz.	Alcohol	to make 6 oz.
Orange Oil	1/4 oz.		

Mix thoroughly.

Formula No. 2

Alcohol	50 oz.	Certified Yellow Food	
Glycerin	15 oz.	Color	10 gr.
Water	34 oz.	Eau de Cologne Oil	1 oz.
		(See Preceding Formula)	

Mix by thorough agitation, filter if necessary.

This is an ideal after-shave application. It conserves natural skin moisture and helps to heal small cuts, while the odor is refreshing and pleasing. A refreshing lotion for use after the bath.

STRONG ASTRINGENT LOTION

A. Lavender Oil	1 lb.	B. Polycol	2 pt.
Vanillin	1 oz.	Aquaresin G. M.C.	1 pt.
Isohol	5 gal.	Water	5 gal.
Menthol	1 oz.		

Mix A until dissolved and add B slowly, with stirring.

Allow to stand overnight, filter through magnesium carbonate, and color to suit.

MILD ASTRINGENT LOTION

A. Witch Hazel	1 gal.	Dissolved in Isohol	1 pt.
Aquaresin G. M. C.	2 oz.	Color to suit	
B. Menthol	1/8 oz.		

This may be perfumed by absorbing the perfume oil in powdered charcoal and filtering the batch through it.

MILKY LOTION

Formula No. 1

	lb.		lb.
A. Lanolin	12	B. Glycopon S	8
Mineral Oil	20	Water	200
Trigamine Stearate	4 1/4	Mold Inhibitor	1/4
Glycostearin	2	C. Perfume	as required

Heat A and B separately to 180°F. and run B into A slowly, while stirring. When the temperature has dropped to 100°F., add the perfume. Continue stirring until cold.

Formula No. 2

Lanolin	1 lb.	Glycostearin	10 lb.
Tincture of Benzoin	20 oz.	Witch Hazel	250 lb.

Melt the first three ingredients together and run into the melt slowly, with stirring, the witch hazel heated to 140°F. Continue stirring until cool. The low cost and high quality of these lotions make them of great interest. They do not contain spermaceti, almond oil, and gums which are prone to spoilage and the technique for making them is very simple.

Formula No. 2 can be made thinner by increasing the amount of witch hazel or thicker by increasing the amount of Glycostearin. Both lotions have excellent soothing and nourishing properties for the skin because of their lanolin content.

SUNBURN OR AFTER SHAVE LOTION

A. Gum Tragacol	50 g.	Oil of Rose	1 dr.
Boric Acid	50 g.	Polycol	400 g.
Isohol	100 g.	C. Water	7 pt.
B. Phenol	1 dr.	Titanium Dioxide	2 oz.
Menthol	1 dr.		

Rub A together with B; add and mix thoroughly. Mix C and stir into previous mixture rapidly for 4 minutes only. Strain through cheese-cloth and bottle. This gives a thick soothing cream which is very popular.

If the phenol is replaced by 1 dram of bismuth oxychloride a smooth skin balm is obtained.

SOLUBLE PINE-NEEDLE BATH OIL

Siberian Pine-Needle		Fluorescein	30 gr.
Oil	16 fl. oz.	Water	2 fl. oz.
Sulfonated Castor Oil	32 fl. oz.	Ammonia (26°)	30 drops

Mix the pine-needle oil and sulfonated castor oil. Add the coloring matter, prepared by dissolving the fluorescein in the water and adding the ammonia to the solution, to the sulfonated castor oil before mixing with the pine-needle oil.

Use the grade of sulfonated castor oil which gives a clear solution with water.

Direction for Use: Add 2 teaspoonfuls to a tub of water.

BUBBLE BATH POWDER

	lb.		lb.
Trisodium Phosphate	5	Cerulose	83
Ultrawet	8	Perfume Oil	1 to 3
Triton X-100	4		

Mix in a rotary sieve.

If different colors are desired use 2% solutions of water-soluble certified cosmetic colors. Do not overcolor; use only delicate pastel shades.

Make a 25% solution of the powder in water if you prefer to market the product in liquid form.

PINE-OIL BATH MILK

	oz.		oz.
Mineral Oil	10	Harcot	10
Pine-Needle Oil	1	Water	50-100

Mix the first three ingredients and then add the water slowly, with stirring. The resulting milk diffuses readily in the bath.

If the pine oil in the previous formula is replaced by rose, lilac, or

other perfume oils, the resulting emulsions may be used for the bath, hair and body.

PERFUME DILUENT AND SOLVENT

Tescol is a new perfume diluent which is soluble in alcohol and water and which permits the oil to be dissolved in diluted alcohol.

Mix 1 part of the perfume compound with 1 or 2 parts of tescol. Dissolve this in alcohol and then add water slowly, with stirring.

WATER-SOLUBLE PERFUMES

Perfume Oil	1 oz.	Mulsene	4 oz.
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This will yield nonalcoholic perfumes, toilet waters and hair tonics, as well as theater sprays. In most cases clear solutions result. Where a slight haze forms, it can be removed by filtering through talc.

Add to 5 gallons (more or less) of water.

LIQUID FACE POWDER

	Parts		Parts
Prepared Chalk	32	Water	64
English Precipitated		Glycerin	16
Chalk	32	Distilled Water	320
Zinc Oxide	8	Perfume Oil	2½
Boric Acid	2		

Mix the powders and color to suit with insoluble dry color. Place the mixed powders in a kettle with the water and boil for 10 minutes. Pour off the water and add the glycerin and distilled water, stirring constantly. Finally add the perfume oil.

BASIC LIPSTICK

	%		%
Aldo 33	42	White Petrolatum	4
Castor Oil	36	Carnauba Wax	4
Bromo Acid	5	Lanolin	3
Mineral Oil	6		

Place all the ingredients except the castor oil and bromo acid in one container and heat to 75°C. Heat the castor oil and bromo acid, stir, and then add to the other ingredients. Pour into molds.

LIPSTICK-STAIN REMOVER*

Removal of lipstick stains from fabrics requires a grease solvent (naphtha or carbon tetrachloride) and a solvent (butyl "Carbitol") for the bromo-acid dyes. The other ingredients are added to assist in the wetting and detergent action of the solvent.

Tergitol Wetting		Butyl Carbitol	2.0 gal.
Agent 7	1.6 lb.	99% Isopropanol	1.5 gal.
Nacconol Detergent		Cleaner's Naphtha	8.0 gal.
NRSF	0.4 lb.		

Avoid Open Flames When Mixing or Using This Formula.

Mix the Tergitol and Nacconol until the Nacconol is dissolved and a clear gel is obtained. Add the butyl Carbitol, naphtha, and isopropanol and stir until a clear solution is obtained.

From one fourth to one half of the naphtha can be replaced with carbon tetrachloride to achieve faster drying and to reduce the fire hazard.

* Courtesy of Carbide and Carbon Chemicals Co.

MOLDED LIP POMADE*

Formula No. 1

Standard types of lip pomades such as that illustrated by the following formula are given a pleasing emollient effect through the use of Atlas G-1050.

	%		%
Mineral Oil	39	Atlas G-1050	13
Petrolatum	9	Perfume-Flavor	
Ceresin Wax	30	Compound	to suit
Beeswax	9		

Melt the ingredients together and add the perfume-flavor compound. Cast.

Formula No. 2

	%		%
A. Mineral Oil	30.0	Tween 60	0.5
Petrolatum	7.0	B. Water	28.0
Ceresin Wax	24.0	Preservative	to suit
Beeswax	7.0	C. Perfume-Flavor	
Atlas G-2859	3.5	Compound	to suit

* Courtesy of Atlas Powder Company.

Melt A at 65°C; add B at 70°C; stir while cooling to 50°C; add perfume-flavor compound and cast.

MASCARA

Cake mascara should come off easily on a moist brush, apply easily to the lashes and be water resistant when on the lashes. Aldo 28 gives a smooth waxy base which is readily moistened for application. Being white, Aldo 28 does not affect the usual colors.

	Parts		Parts
Stearic Acid	20	Beeswax	10
Aldo 28	50	Cosmetic Pigment	10
Triethanolamine	10		

The ingredients are melted and stirred together. Grinding is usually not needed when finely ground cosmetic pigments are used. When carnauba wax is substituted for the beeswax, the triethanolamine and stearic acid should be increased so that the melting point of the mascara is not appreciably increased.

ANTISEPTIC SHAMPOO

Green Soap (Druggists' Soft Soap)	4 oz.	Pine Oil	3 fl. dr.
Castile Soap	4 oz.	Rectified Tar Oil	3 fl. dr.
Alcohol	1/2 pt.	Oxyquinoline Sulfate	1/8 oz.
Borax	1/2 oz.	Water	3 1/2 pt.

Use either powdered castile soap or cake cut small. Dissolve this with the borax in the water by means of heat. Mix the soft soap with the alcohol and add the oils of pine and tar. Stir this mixture into the castile-soap-borax solution and then strain through a cloth. Dissolve the oxyquinoline sulfate in the mixture.

This makes a rather heavy bodied shampoo with a tendency to become heavier in consistency in cold weather. The quantity of alcohol and water may be increased so as to get any consistency desired. The tar oil may be omitted if a straight pine shampoo is desired. In this case, the quantity of pine oil should be increased to 5 fluid drams.

Isopropyl alcohol may be used instead of ethyl alcohol in making this shampoo.

Use as ordinary lather type shampoo. Always wash all of the soap

out of the hair after shampooing, using warm water. Cold water may be used for the last washing, this producing a quick reaction and acting as a stimulant to the scalp.

IMPROVED CREAM-SHAMPOO THICKENER AND HAIR CONDITIONER

Polyethylene glycol distearate is suggested as an improved thickener and hair conditioning agent for synthetic detergent cream and liquid shampoos.

It is a nonionic thickening agent which tends to minimize the reduction in foam or lather occurring when inorganic soaps, such as sodium stearate, are used as thickening agents. Being nonionic, no hard-water soap scums form as in the case of soaps. In addition, this glycol has hair conditioning properties and, depending on the formulation, other hair conditioning agents may not be required.

The following are examples of general good basic formulas which can be varied in accordance with individual requirements. These formulas are based on the use of 50% by weight of the detergent but this may be reduced to as low as 25% with good results. The clear liquid shampoo formulas are considered to be particularly highly concentrated and have a high cloud point of about 70°F. They are usually diluted with water in the ratio of 1 pint to 1 gallon which gives a clear shampoo with a much lower cloud point.

SOLID CREAM SHAMPOO

	Parts		Parts
Duonol Wa Paste (Sodium		Polyethylene Glycol	
Coconut Alcohol		Distearate	3
Sulfate)	50	Water	46
Magnesium Stearate	1		

CLEAR LIQUID SHAMPOO

Formula No. 1

	Parts		Parts
Duonol St. (Triethan-		Polyethylene Glycol	
olamine Coconut Alcohol		Distearate	6
Sulfate)	50	Water	44

Formula No. 2

Parts		Parts	
Duponol Wat (Triethan- olamine Lauryl Sulfate)	50	Polyethylene Glycol	
		Distearate	5
		Water	45

Formula No. 3

Parts		Parts	
Duponol Wa Paste (Sodium Cocoanut Alcohol Sulfate)	50	Polyethylene Glycol	
		Distearate	5
		Water	45

OIL SHAMPOO

Cocoanut Oil	5 lb.	Neroli Bigrade Oil	2 dr.
Olive Oil	6 lb.	Yara Yara Crystals	1/2 dr.
Pine Tar	1/4 lb.	Water	to make 5 gal.
Potassium Hydroxide	2 1/4 lb.		

Mix the cocoanut oil, olive oil, pine tar, neroli oil and yara yara crystals together and warm. Mix the potassium hydroxide with 2 1/2 pounds of water. Gradually add the caustic solution to the oils, shaking or stirring. Gradually add the balance of the water, shaking or stirring after each addition. If a small amount of liquid separates, draw it off or syphon off the soap solution from it. Add 2 pounds of powdered rotten stone, shake, and filter clear.

To any liquid shampoo 2 or 3 ounces of tincture of cantharides may be added for tonic action and from 30 to 40 grains of oxyquinoline sulfate per gallon for antiseptic action. These should be added to the finished shampoo, dissolving the oxyquinoline sulfate in a little water before adding.

However, so far as tonic and dandruff removing effects are concerned in liquid shampoos, there is really nothing in the way of tonic ingredients that will be of much utility, as the shampoo is entirely washed out of the hair immediately after using, taking with it the tonic. There is no chemical having a definite tonic action on the hair. Hair tonics produce their effects by improving circulation in the scalp and in shampooing this is brought about by rubbing and massaging. Any good liquid shampoo will readily remove dandruff without any special dandruff-removing agent.

Where the scalp is badly covered with dandruff, an oil treatment is

often advisable before using the shampoo. One of the best of these is ordinary white petrolatum, perfumed and colored if desired. Massage into the scalp with the fingertips, being sure that the entire surface of the scalp is gone over, then wrap a towel dipped in hot water closely over the scalp, leaving for a few minutes and repeating until about three hot towels have been used. Then proceed to shampoo in the usual manner. Always wash all of the soap out of the hair after shampooing, using warm water. For a further tonic action, cold water may be used as a last washing, this producing a quick action and acting as a stimulant to the scalp.

COCOANUT-OLIVE SHAMPOO

Cochin Cocoanut Oil	30 lb.	90% Caustic Potash	8 lb.
Olive Oil	2 lb.	Water	22 pt.

Melt the oils together on a water-bath (double-boiler) using only enough heat to melt the cocoanut oil.

Dissolve the potash in the water (hot) and gradually pour the potash solution into the mixed oils, stirring constantly. As soon as the hot potash solution is all mixed with the oils, remove from the fire or shut off the heat. Keep stirring the mixture until a thick paste soap results and stirring is no longer possible. Let the mixture stand in a moderately warm place for a few hours, or overnight, to insure complete saponification. This is the shampoo base paste.

To prepare the shampoo, place 12 gallons of hot water into a barrel from which the head has been removed. Set the barrel on end and fit a faucet into it about 2 inches from the bottom. Stir the soap paste into the water until completely dissolved. Cover with a cloth to keep out the dust and let stand for 8 days. Then draw off the clear soap through the faucet. This is the finished soap and requires no filtering.

After the soap has stood in the barrel for 8 days or so, all unsaponified oil and undissolved soap will rise to the top of the barrel. Therefore, use care in drawing off to stop before any sediment which may gather at the bottom of the barrel comes through the faucet. This applies also to that which rises to the top. The material left in the barrel is worked into the next batch of soap when making.

Just enough perfuming and color should be used to get the exact tint and odor wanted. This is best added to the finished soap. The addition of about 3% of alcohol is desirable to prevent clouding in cold weather.

ANTISEPTIC-TONIC SHAMPOO

Shampoo Base*	1 gal.	Cologne Soap	
Tincture of Cantharides	2 oz.	Perfume Oil	to suit
Oxyquinoline Sulfate	30 gr.	Certified Cosmetic Yellow	
Alcohol	3-8%	Soap Color	to suit

Mix the tincture of cantharides and alcohol with the shampoo base. Dissolve the oxyquinoline sulfate in a little water and add. Add perfume, the oil and color; mix thoroughly.

* SHAMPOO BASE

Formula No. 1

Cocoanut Oil	30 lb.	90% Caustic Potash	9½ lb.
Olive Oil	2½ lb.	Water	22 pt.
Palm Oil	2 lb.		

Melt the oils together on a water-bath, using only enough heat to reduce them to a liquid form.

Dissolve the potash in the water (hot) and gradually pour the potash solution into the mixed oils, stirring constantly. As soon as the hot potash solution is all mixed with the oils, remove from the fire or shut off the heat. Keep stirring the mixture until a thick soap paste results and stirring is no longer possible. Let the mixture stand in a moderately warm place for a few days or overnight to insure complete saponification.

To prepare the liquid base from this paste, dissolve it immediately in 12 gallons of hot water as directed under Cocoanut-Olive Shampoo.

Formula No. 2

Cocoanut Oil	30 lb.	90% Caustic Potash	9¼ lb.
Palm Oil	5 lb.	Water	22 pt.

Proceed exactly as in the previous formula.

This base may be used instead of number 1 to modify the shampoo. The oxyquinoline sulfate gives the shampoo antiseptic properties while the tincture of cantharides gives it tonic properties.

LIQUID AND CREAM*

HAIR SHAMPOOS

	Formula No. 1	No. 2	No. 3
	(Liquid)	(Liquid)	(Cream)
	lb.	lb.	lb.
Cocoanut-Oil Fatty Acids	42	42.0	21.0
Oleic Acid	56	56.0	14.0

* Courtesy of Carbide and Carbon Chemicals Co.

Triple-Pressed-Stearic Acid	—	—	13.5
Propylene Glycol	55	55.0	—
Moneothanolamine	—	12.6	7.5
Triethanolamine	58	28.5	14.2
40% Formalin	—	—	1.2
Titanium Dioxide	—	—	0.2
Tergitol Wetting Agent 7	—	10.0	3.0
Cellosize WSLM	—	—	35.0
Distilled Water	—	—	125.0

To prepare formulas 1 and 2, mix the fatty acids, add the amines, and then the propylene glycol. Stir until a clear solution is obtained; then add the Tergitol and formalin, if desired. No heating is required. Dilute with water to any desired consistency. When the water is first added, the shampoo concentrate assumes a petrolatum-like consistency, but gradually changes to a clear, very slightly viscous solution of pale amber color. If the water solution is cloudy, stir in more amine, a little at a time, until it becomes clear.

A solution of 1 part of either formula with 3 parts by weight of water before use makes an excellent shampoo.

To prepare formula 3, melt the fatty acids together and adjust the temperature of 50 to 55°C. Add the Tergitol and the formalin. Heat the water to 60°C; add the amines and the Cellosize. Adjust the temperature of the solution to about 50°C. Add the water solution to the melted fatty acids and stir constantly until a clear viscous mixture is obtained and then at intervals until the temperature is about 35°C.

Add the perfume and mix thoroughly. Disperse the titanium dioxide in half of its weight of Tergitol, grind it to a smooth paste, and then blend it into the cream. It may be necessary to mill the final product in order to obtain a complete dispersion of the titanium dioxide in the cream. Prepare a concentrated solution of a suitable dye. Add a small amount of this solution at a time, with thorough mixing, until the cream is of the desired tint.

Amine soaps will darken in color on standing, though this has no effect on their properties. A better color is maintained if the concentrated shampoo is diluted with water when first made than if it is stored and diluted at some later time. The addition of 0.5 to 1% borax or trisodium phosphate to the water, when diluting the shampoo, will prevent some of the discoloration. The addition of $\frac{1}{2}$ pound of formalin (40% formaldehyde solution) to each 200 pounds of concentrated shampoo

will prevent much of the discoloration during storage. The formalin also seems to decrease the soapy odor of the shampoo. Treated shampoo should be shelf tested for a few weeks to ascertain whether the formalin will affect the perfume normally used in such products.

SYNTHETIC DETERGENT HAIR SHAMPOOS

Synthetic detergents may be preferred to soaps, especially where only hard water or sea water is available for the shampoo. Since they are usually extremely efficient and effective emulsifying agents by comparison to soaps, they may be too drying for some hair.

	<i>Formula No. 1</i> (Cream)	<i>No. 2</i> (Liquid)
	lb.	lb.
Tergitol Wetting Agent 7	33.3	25.0
Nacconol Detergent NRSF	16.6	8.4
Light-Colored Bentonite	7.4	1.6
Cellosize WSLH	5.7	—
Water	37.0	65.0

To prepare the cream shampoo, add the bentonite to the water, stir well, and let stand for several hours. Mix until a smooth paste is obtained. A mechanical stirrer readily produces a smooth mixture.

Mix the Tergitol and Nacconol. Stir at intervals until the Nacconol is completely dispersed and a clear gel is obtained.

Gradually stir this gel into the paste. Avoid aeration caused by rapid stirring. Add the Cellosize and stir without aeration until a smooth cream is obtained. Finally, add perfume and tint as desired.

To prepare the liquid shampoo, add the bentonite to half of the water and stir until a smooth mixture is obtained. Then add the Nacconol and stir until it is dissolved. Gradually stir in the rest of the water and then the Tergitol. Add perfume and tint as desired.

PINE-CASTILE SHAMPOO

Castile Soap	32 oz.	Pine Oil	2 dr.
Glycerin	4 oz.	Eucalyptus Oil	2 dr.
Alcohol	16 oz.	Water	1 gal.

Dissolve the soap in the water by means of heat, adding the glycerin after the soap has been dissolved. Remove from the fire and when it has cooled down, stir in the alcohol in which the oils have previously been dissolved. Color and additional perfume may be added if desired.

FRUIT-SCENTED COCOANUT SHAMPOO

Cocoanut-Oil Soap Base*	3 lb.	Fruit Oil	1/8-1/2 oz.
Oxyquinoline Sulfate	30 gr.	Strawberry Red Certified	
Tincture of Cantharides	2 oz.	Food Color	to suit
Alcohol	10 oz.	Water	to make 1 gal.

Dissolve the cocoanut-oil soap in 4 pints of boiling water, let cool, and then add the alcohol with which the tincture of cantharides and the fruit oil have been mixed.

Dissolve the oxyquinoline sulfate in a little water and add. Add powdered talc and filter clear. Color as desired with a bright-red certified food color.

*COCOANUT-OIL SOAP BASE

Cocoanut Oil	10	Water	3
Potassium Hydroxide	2		

Heat the oil in a large tared vessel. Make a solution of the potassium hydroxide and the water, then add to the warm or hot oil, and stir vigorously with a wooden paddle till completely saponified, that is, a thick smooth paste is obtained which when a few drops are added to hot water dissolves completely. Then add hot water, slowly, with constant stirring, until the total contents of the vessel weighs 20 pounds.

SOAPLESS FOAMING SHAMPOO

The foaming soapless shampoos are made from a salt of a sulfonated fatty alcohol, or from an alkyl aryl sulfonate. The former is covered by patents (Drene type). However, there are no patents covering the use of the alkyl aryl sulfonates.

These alkyl aryl sulfonates are sold under various trade names. One of the best is Verifoam A.

Verifoam A	12 oz.	Perfume and Color	to suit
Water	1 gal.		

Dissolve the Verifoam A in the water by means of heat. Mix the perfume oil with 4 ounces of powdered pumice, put into a filter, and run the Verifoam A solution through it several times to dissolve as much of the oil as possible.

Color to suit with a trace of certified cosmetic color.

SOAPLESS OIL SHAMPOO

White Mineral Oil	15 fl. oz.	Color and Perfume	to suit
Water	35 fl. oz.	Pure Caustic Soda	1 oz.
Sulfonated Castor Oil	50 fl. oz.	Water	4 oz.

Mix the oils, add the water, and heat the mixture to 150°F. Dissolve the caustic in the water and add drop by drop to the oil-water mixture, with constant stirring, until it becomes clear and bright.

Any desired perfume oil may be used. Usually $\frac{1}{4}$ to $\frac{1}{2}$ ounce of perfume oil is used to each gallon of oil shampoo. Use the grade of sulfonated castor oil which mixes clear with water. Color to suit with a very small quantity of certified cosmetic color.

AMMONIATED TOOTHPASTE*

Toothpaste is not an emulsion, but a dispersion which must be formulated so that the final product is soft and homogenous. A good toothpaste must be stable and must retain its plasticity even if the cap is left off the tube.

Recent claims that the use of agents which will lessen the activity of acid-producing bacteria will reduce the incidence of dental caries have led to interest in toothpastes containing dibasic ammonium phosphate-urea combinations, which release ammonium ions. Such a paste is illustrated in the following formula.

	%		%
Tricalcium Phosphate	38.67	dichloro-diphenyl	
Urea	13.00	methanol	0.25
Dibasic Ammonium		Sodium Lauryl	
Phosphate	3.00	Sulfoacetate	2.00
Sorbo	14.50	Aminoacetic Acid	0.34
Glycerol	10.00	Carboxymethyl-	
Water	16.64	Cellulose	0.28
2-2'-hydroxy-5,5'		Flavor Oil	1.10
		Saccharin	0.22

* Courtesy of Atlas Powder Co.

TOOTH PASTE

	oz.		oz.
Powdered Tin Oxide	10	Powdered Cane Sugar 4X	5
Precipitated Calcium		Glycerin	21
Carbonate	12	Water	35
Magnesium Carbonate	10	Oil of Peppermint	$1\frac{1}{2}$
Powdered Castile Soap	3	Liquor Carmini, N.F.	$\frac{1}{2}$
Powdered Talc	2		

Mix the powders well first by running through a sieve several times, then mix with the other ingredients in divided portions. A pony mixer is a great help in mixing thoroughly.

Tin oxide (called white polishing powder) is not only very smooth but also a very superior polishing material. Magnesium carbonate imparts the proper plasticity and the talc smoothness.

To regulate the consistency either decrease or increase the amount of calcium carbonate.

Plain oil of peppermint is popular as flavoring.

SOLUBLE TOOTH POWDER

Sodium Chloride		Powdered Castile Soap	3 oz.
(common Salt)	2 oz.	Oil of Peppermint	30 min.
Sodium Perborate	2 oz.	Methyl Salicylate	
Sodium Bicarbonate	16 oz.	Natural or True	30 min.
Borax	8 oz.		

Mix the borax with the sodium bicarbonate and spray or sprinkle the mixed oils over it, mixing well. Then add the sodium chloride, sodium perborate, and powdered castile soap. Pass through a sieve several times, mixing well after each sifting.

If a less salty product is wanted, reduce the amount of sodium chloride to 1 ounce.

The formula as given makes an entirely soluble product with excellent cleaning qualities. Both calcium phosphate and magnesium oxide are almost entirely insoluble in water. Up to 1 pound of either or $\frac{1}{2}$ pound of each may be added to this formula, but the resulting powder will not be entirely soluble.

TOOTH PASTE

Precipitated Calcium		Glycerin	2 lb.
Carbonate	3 $\frac{3}{4}$ lb.	Water	3 $\frac{1}{2}$ lb.
Sodium Chloride	1 dr.	Liquor Carmini N.F.	1 oz.
Powdered Castile Soap	5 oz.	True Wintergreen Oil	5 dr.
Powdered Pepsin	2 dr.	Sassafras Oil	3 dr.
Zinc Chloride	$\frac{1}{2}$ oz.	Orange Oil	1 dr.
Powdered Tragacanth	$\frac{1}{2}$ oz.	Anise Oil	1 dr.
Emetin Hydrochloride	5 gr.	Peppermint Oil	11 dr.

Mix all the powders first; then add all the liquids except the water, with rapid and continued mixing; finally add the water in successive portions, mixing well.

A pony mixer is the best for mixing large quantities.

DENTAL-PLATE COMPOUND

Formula No. 1

(Powder)

Powdered Karaya Gum	10 lb.	Powdered Boric Acid	½ lb.
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Mix intimately. Put up in sifter-top cans.

Directions for Use: Wet the plate and sift on a little of the powder. Do not use too much.

Formula No. 2

(Paste)

Powdered Karaya Gum	1 lb.	White Petrolatum	8 oz.
White Mineral Oil	16 fl. oz.	Boric Acid, Powdered	¼ oz.

Mix the karaya gum and the boric acid, add the white mineral oil, and mix well. Then add the petrolatum and mix until it forms a perfectly smooth paste. By melting the petrolatum before adding, the mixing will be considerably easier. Put up in collapsible tubes.

Directions for Use: Wipe the plate perfectly dry, then squeeze a small quantity of the paste on the inner side of the plate, rubbing well over the surface with the finger. Do not use too much.

This product is a tasteless and odorless nonpoisonous compound, for firmly holding dental plates or false teeth in position. It is highly effective in action.

DENTAL-PLATE CLEANER

Sodium Perborate	4 oz.	Borax	½ oz.
Sodium Chloride	8 oz.		

Mix intimately. Put up in closely stoppered containers.

Directions for Use: Dissolve a teaspoonful of the powder in sufficient water to cover the dental plates. Put the plates into this solution and allow to stand overnight. In the morning rinse with clear water.

The sodium perborate slowly liberates oxygen which unites with mucous films, discolorations, etc., removing them.

BORATED, SCENTED TALCUM POWDER

Powdered Talcum	90 lb.	(Cut in a Little	
Magnesium Carbonate	5 lb.	Alcohol)	2 dr.
Powdered Boric Acid	5 lb.	Perfume Oil	1 oz. or more
Yara Yara Crystals			

Mix thoroughly.

The most difficult part of making a talcum powder is getting good ingredients. There are many varieties of talc on the market. French talc is the lightest and whitest. Then come Italian and California. To tell them apart one must select one absolutely white and soft and greasy in texture. When sprayed on a piece of paper and held at various angles to the light, there should be no signs of mica of which there is most in California talc.

Since perfume oils evaporate easily from talcs, to give the perfume a strong base use yara yara crystals as indicated. Any desired flower or bouquet perfume oil may be used.

MEDICINAL PREPARATIONS

INTEGRITY IN MANUFACTURING

Manufacturers, or those contemplating to engage in the field of manufacturing medicinal preparations for the public, may well set the standard of the priceless ingredient as their ideal. "Pride in product" should suggest the use of none but the best ingredients, precision in preparation, and observance of requirements of the laws pertaining to labeling.

ANALGESIC TABLETS

Formula No. 1

Each tablet contains:

Acetylsalicylic Acid	2 gr.	Sodium Bicarbonate	1 gr.
Acetophenetidine	1 3/4 gr.	Flavoring Oil	
Caffeine Alkaloid	1/4 gr.	(Compound)	1/10 min.
Phenyl Salicylate		{	{
(Salol)	1/2 gr.		
Sodium Salicylate	1/2 gr.		
Phenolphthalein	1/2 gr.		
		Mix.	

Mix thoroughly and compress into tablets. These tablets are intended for the relief of pain due to headaches, colds, neuritis, neuralgia, rheumatism, toothache and pains caused by tooth extractions.

Dose: Adults, one or two tablets, taken with water. The dose may be repeated in 2 or 3 hours if necessary.

Formula No. 2

Each tablet contains:

Acetophenetidine	2¾ gr.	Flavoring Oil	
Acetylsalicylic Acid	2½ gr.	(Compound)	¼ min.
Quinine Sulfate	¾ dr.	{	{
Caffeine Alkaloid	¼ gr.		
Powdered Talc	¼ gr.		
		Oil of Cinnamon	1 oz.
		Oil of Ginger	1 oz.
		Oil of Cardamon	½ oz.
		Oil of Nutmeg	3 dr.

Mix thoroughly and compress into tablets.

This tablet is recommended for the relief of pain due to headaches, colds, neuritis, neuralgia, rheumatism, toothache and pains caused by tooth extractions.

Dose: Adults, one or two tablets, taken with water. The dose may be repeated in 2 or 3 hours if necessary.

ANALGESIC, ALKALIZING EFFERVESCENT TABLETS

Formula No. 1

	gr.		gr.
Sodium Phosphate	500	Citric Acid	162
Heavy Magnesium Oxide	409	Sodium Acetylsalicylate	150
Sodium Bicarbonate	477	Caffeine Citrate	30
Tartaric Acid	252		

Dry the sodium phosphate on a water bath until it ceases to lose weight. Then powder and mix thoroughly with the tartaric and citric acids. Then add the sodium bicarbonate, sodium acetylsalicylate, and caffeine and mix thoroughly.

Water cannot be used in massing such mixtures as it will cause the acids to react with the alkalies. For this reason, the mixed powders are moistened with 95% alcohol sufficiently to allow them to be granulated by rubbing through a sieve. This granulated mixture is then compressed into tablets weighing approximately 60 grains each.

The quantities of tartaric and citric acids and sodium bicarbonate are figured to neutralize each other when the tablets are dissolved, leaving the sodium phosphate and the heavy magnesium oxide as the alkalizing agents and the sodium acetylsalicylate as the analgesic agent, enhanced by the caffeine citrate. Due to the presence of the heavy magnesium oxide,

this tablet will not be completely soluble. For a completely soluble product, omit the heavy magnesium oxide and increase the quantity of sodium phosphate to 909 grains.

The formula will give approximately 5 grains of sodium acetylsalicylate to each 60 grain tablet. The caffeine citrate may be omitted from the formula.

Formula No. 2

This tablet is formulated on the basic salts required to maintain the alkali reserve of the body.

Calcium Glycerophosphate	160 gr.
Magnesium Phosphate (or Sodium Phosphate) *	350 gr.
Calcium Phosphate	350 gr.
Potassium Bicarbonate	700 gr.
Sodium Bicarbonate	3 oz; 260 gr.
Sodium Citrate	10 oz.
Tartaric Acid	1 oz; 240 gr.
Citric Acid	1 oz.
Sodium Acetylsalicylate	1 oz; 240 gr.
Caffeine Citrate	145 gr.

Mix the mass and compress as for preceding formula.

A sixty-grain tablet made from this formula will contain about $4\frac{3}{4}$ grains of sodium acetylsalicylate and 1 grain of caffeine citrate.

These effervescent tablets are intended for neutralizing gastric and systemic hyperacidity and as an aid in relieving colds, headaches, minor muscular pains, heartburn, sour stomach and some other minor ailments due to an excess acid condition.

Directions for use: Adults, for colds, two tablets dissolved in a glass of water until 3 or 4 doses have been taken; for headaches, minor muscular pains, simple neuralgia, 1 or 2 tablets dissolved in a glass of water; dose may be repeated if conditions require; for heartburn, sour stomach, or gas in stomach, if caused by hyperacidity of the stomach, take one tablet after meals, dissolved in a glass of water. Children may take in proportion to weight as compared with an average adult.

* Since magnesium phosphate is only slightly soluble in water, this tablet will not dissolve entirely. For a completely soluble tablet replace the magnesium phosphate with 350 grains of dibasic sodium phosphate.

LAXATIVE ANALGESIC TABLETS

Each tablet contains:

Acetophenetidine	2 $\frac{3}{4}$ gr.	Flavoring Oil	
Acetylsalicylic Acid	2 $\frac{1}{2}$ gr.	(Compound)	$\frac{1}{10}$ min.
Quinine Sulfate	$\frac{3}{4}$ gr.	{	{
Caffeine Alkaloid	$\frac{1}{4}$ gr.		
Powdered Talc	$\frac{1}{4}$ gr.		
Phenolphthalein	$\frac{1}{2}$ gr.	Oil of Cinnamon	1 oz.
		Oil of Cardamon	$\frac{1}{2}$ oz.
		Oil of Nutmeg	3 dr.

Mix thoroughly and compress.

This is recommended for the relief of pain due to headaches, colds, neuritis, neuralgia, rheumatism, toothaches, and pains caused by dental extractions.

Dose: Adults, one or two tablets, taken with water; may repeat dose in 2 or 3 hours if necessary.

Each tablet contains 2 $\frac{3}{4}$ grains of acetophenetidin.

ANALGESIC TABLETS

	g.		g.
Acetylsalicylic Acid	30	Caffeine	20
Sodium Salicylate	20	Thiamine Chloride	1
Phenacetin		Ascorbic Acid	50
(Acetophenetidine)	10	Low-Viscosity	
		Methylcellulose	100

Mix all ingredients, except the methylcellulose, in a jar by shaking or tumbling and sift from lumps if necessary.

Add the methylcellulose dry and mix thoroughly. Transfer to a dough mixer having slowly rotating paddles and add water until of proper consistency for spreading.

Spread on the plate of a tablet machine and dry with gentle heat until of a consistency suitable for cutting and cut into tablets.

The quantities given in the formula will make 300 tablets, each weighing 0.77 g.

Recommended dose: Three tablets, three times a day, (or oftener if prescribed by a physician). Obstinate cases should always be under medical observation and treatment.

This is an aid for the relief of muscular pains and aches, particularly those of rheumatism, arthritis, sciatica, and neuritis.

Children complaining of these symptoms should be entrusted to the care of a physician.

VITAMIN-IRON-LIVER ELIXIR

One liter (200 doses) of an elixir compound of vitamins, iron, and liver with B₁₂ possessing hematinic action is made as follows:

To 950 cubic centimeters of distilled water, add 1.5 grams of salicylic acid, and stir and warm gently until dissolved. Then add 100 grams of acacia gum and let stand overnight. Then stir up with low-speed stainless-steel stirrer. When homogeneous, add:

95% Alcohol	15.0 cc.	Folic Acid	1.0 g.
Ferrous Gluconate	26.0 g.	Nicotinamide	30.0 g.
Liver Concentrate	13.0 g.	Calcium Glycero-	
Vitamin B ₁	0.2 g.	phosphate, N.F.	20.0 g.
Vitamin B ₂	0.2 g.	Sodium Glycero-	
Vitamin B ₆	0.1 g.	phosphate, N.F.	10.0 g.
Vitamin B ₁₂	0.4 mg.	Heavy Orange Syrup	to taste

Make up to 1,000 cubic centimeters by adding distilled water and stir until homogeneous.

Dose: Adults, one or two teaspoonfuls three times daily. Children, ½ to 1 teaspoonful. SHAKE WELL BEFORE USING.

Salicylic acid is added as a preservative. This should preferably be bottled in dark glass.

VITAMIN COMPLEX ELIXIR

For 1 liter (200 doses), add to 850 cubic centimeters of distilled water, 1 gram of salicylic acid, and warm gently until dissolved. Then add 5 grams of low-viscosity, pharmaceutical-grade sodium carboxymethyl cellulose. Let stand overnight. Stir with a stainless steel stirrer, and add:

Vitamin B ₁	0.50 g.	Choline Bitartrate	5 g.
Vitamin B ₂	0.50 g.	Calcium Glycero-	
Vitamin B ₆	0.25 g.	phosphate, N.F.	20 g.
Vitamin B ₁₂	0.60 mg.	Ferrous Gluconate	25 g.
Nicotinamide	30.00 g.	Brewer's Yeast	
Calcium		Powder	10 g.
Pantothenate	0.50 g.	95% Alcohol	120 cc.
Methionone	5.00 g.	Orange Syrup	to taste

Make up to 1,000 cc with distilled water and stir until homogeneous. Bottle in dark glass bottles.

This is a therapeutic vitamin-complex elixir intended to serve as a source of thiamin, riboflavin, iron, etc., in deficiencies, as a dietary supplement, and as a therapeutic tonic.

Dosage: For adults as a dietary supplement, 1 tablespoonful daily at meals; as a therapeutic tonic in iron, thiamin, and riboflavin deficiencies, 1 or 2 tablespoonfuls after each meal. During convalescence, for adults, 2 tablespoonfuls after each meal, or as the physician may suggest. Dose for children, in proportion to age.

VITAMIN LIQUID CONCENTRATE

	<i>Base</i>		<i>Quantity For Larger Lot</i>	
Vitamin A	5.0	m.	5,000,000	units
Vitamin D-3	1.0	m.	1,000,000	units
Vitamin B ₁	1.0	mg.	1.0	g.
Vitamin B ₂	1.0	mg.	1.0	g.
Vitamin B ₆	0.5	mg.	0.5	g.
Calcium Panthotenate	3.0	mg.	3.0	g.
Nicotinamide	10.0	mg.	10.0	g.
Vitamin C	30.0	mg.	30.0	g.
Vitamin B ₁₂	1.0	microgram	1.0	mg.
Folic Acid	0.25	mg.	2.5	g.
Acacia Gum	5.0	milligrams	5.0	g.
Orange Syrup	to make 0.6	cc.	to make 600.0	cc.

The vitamin A may be obtained in a water-soluble form. Add the components in the order given to about 400 cubic centimeters of orange syrup containing 5 g. of acacia. Shake or stir until solution is obtained. Do not heat above room temperature as this will destroy some of the vitamins. Store in a cool place in dark bottles.

This vitamin liquid concentrate of pleasant taste is especially adapted for administration to infants.

Dosage: For infants and children, 10 drops daily in milk, fruit juices, water, on foods or directly on the tongue. SHAKE BEFORE GIVING. Store in a refrigerator.

VITAMIN B₁--SHERRY WINE COMPOUND

Thiamin Chloride (Crystal-	phosphate	1 oz. 75 gr.
line Vitamin B ₁) 3 gr.	Potassium Glycero-	
Powdered Nucleinic	phosphate	1 oz. 75 gr.
Acid 256 gr.	Sodium Glycero-	
Calcium Glycero-	phosphate	256 gr.

Manganese Glycero-phosphate	64 gr.	Fluid Extract of Cardamon Compound	2 dr.
Water	3 pt.	Alcohol	21 oz.
Artificial Walnut Flavor (See Index)	2 dr.	Syrup } Sherry Wine }	to make 1 gal.

Mix and dissolve, let stand for a few hours, with occasional agitation, and filter clear. Dissolve the thiamin chloride in a little water; then add enough water through the filter to obtain $\frac{1}{2}$ gallon of filtrate. To this filtrate add the syrup and sherry wine in equal parts to make 1 gallon. If desired, the syrup may be omitted and sherry wine alone used to make up to 1 gallon. Brown and red certified food color solutions may be used to secure the desired shade in the finished product.

This is a palatable tonic and stimulant of appetite and digestion as well as a desirable hematinic. It is beneficial during convalescence from illness, after surgical operations, etc. It is particularly acceptable to children and the aged.

Dose: Adults, 1 to 4 teaspoonfuls, according to condition; children may take $\frac{1}{2}$ to 1 teaspoonful. It should be taken in a little water, after meals.

Each fluid ounce will contain 500 units of vitamin B₁.

VITAMIN B₁-GLYCEROPHOSPHATES COMPOUND

Thiamin Chloride (Crystal-line Vitamin B ₁)	3 gr.	Water	3 pt.
Powdered Nucleinic Acid (Merck)	256 gr.	Artificial Walnut Flavor (See Index)	2 dr.
Calcium Glycero-phosphate	1 oz. 75 gr.	Fluid Extract of Cardamon Compound	2 dr.
Potassium Glycero-phosphate	1 oz. 75 gr.	Alcohol	21 oz.
Sodium Glycero-phosphate	256 gr.	Brown Food Color	
Manganese Glycero-phosphate	64 gr.	Stock Solution*	280 min.
		Red Food Color	
		Stock Solution*	280 min.
		Infusorial Earth	about 1 oz.
		Syrup	1 gal.

Mix and proceed with the formula in the order given; let stand for a few hours, with occasional agitation, filter clear, and add water enough through the filter to obtain $\frac{1}{2}$ gallon of filtrate. Dissolve the thiamin chloride in a little water and add; then add syrup to make up to 1 gallon.

This palatable preparation is intended as a tonic, stimulant of appetite

as well as a hematinic. It is beneficial during convalescence from illness, after surgical operations, etc. It is particularly acceptable to children and the aged.

Each fluid ounce will contain 500 units of vitamin B₁.

Dose: Adults, 1 to 4 teaspoonfuls, according to condition; children may take a ½ to 1 teaspoonful. It should be taken in a little water, after meals.

* The food-color stock solutions are best made up using 1 ounce of powdered certified food color in a pint bottle and adding 4 ounces of glycerin as a preservative and finally sufficient water to make 1 pint.

NUTRITIVE TONIC GROWTH STIMULANT

Standardized Cod-Liver		Potassium Hypophosphite	2¾ oz.
Oil	4 pt.	Calcium Glycero-	
Powdered Acacia	½ lb.	phosphate	3 dr.
Water	2 pt.	Sodium Glycero-	
Syrupy Medicinal Malt		phosphate	3 dr.
Extract	1 lb.	Vanillin	72 gr.
Baker's Unsweetened		Alcohol	6.4 oz.
Chocolate Liquor	6½ oz.	Thiamin Chloride (Crystal-	
Sodium Salicylate	⅓ oz.	line Vitamin B ₁), add to	
Sodium Benzoate	½ oz.	each gallon of finished	
Sodium Chloride	⅓ oz.	product	3 gr.

Melt the chocolate liquor in a double boiler with about ½ pint of water. Mix separately in an emulsifier or ice-cream freezer the cod liver oil and acacia.

Dissolve the sodium salicylate, benzoate, and chloride, potassium hypophosphite and glycerophosphates in 1 pint of water, and the vanillin in the alcohol. Mix these two solutions and add the chocolate liquor (melted with 1 pint of the water) to it. Finally add sufficient water to make 6 pints. Dissolve the thiamin chloride in a little water and add to the mixture. Then, running the colloid mill at high speed, gradually but steadily add the above mixture to the cod-liver oil and acacia mixture. Continue to run until a good emulsion is formed.

This nutritive tonic is also a growth and appetite stimulant and an antirachitic. It is recommended for use in vitamin A, B, and D deficiency and as an aid in the prevention and treatment of rickets. It is suitable for

growing children as well as adults and is generally well tolerated. This product will contain 500 units of vitamin B₁ per fluid ounce.

Dosage: Adults, 1 or 2 tablespoonfuls three times a day; it may be taken after or before meals; children may take 1 or 2 teaspoonfuls, or less, according to age, alone or in milk or water. Always shake the bottle well before taking or giving.

COD-LIVER OIL TONIC

	<i>Parts</i>		<i>Parts</i>
American or Norwegian		Sodium Benzoate	0.5
Cod Liver Oil	37.0	Syrupy Malt Extract	6.0
Powdered Gum Arabic	10.0	Glycerin	5.0
Mucilage of Irish Moss		Sodium Hypophosphite	0.5
(National Formulary)	10.0	Calcium Hypophosphite	0.5
Water	20.0	Syrup	10.0

Mix the gum arabic with the water; dissolve the sodium benzoate and the hypophosphites in this mixture and then add the mucilage of Irish moss. Put into colloid mill and run until the surface is well coated; then add the cod-liver oil and run for 10 to 15 minutes. Let stand for a few minutes; then run again until it forms an even mixture. Add to this, while the mill is still running, the malt and the glycerin.

This preparation is a nutritive tonic and food medicine, recommended in vitamin A and D deficiency, very effective in convalescence from coughs due to colds and when recovering from illness or surgical operations. It is an excellent stimulant to the appetite both for children and adults. It helps increase resistance to colds and coughs when such conditions are due to a lack of vitamin D.

Directions: For adults, $\frac{1}{2}$ to 1 tablespoonful three or four times a day, after meals; for children, according to age, a teaspoonful or more. Always shake the bottle before taking or giving.

GADUOL TONIC AND STIMULANT

Base Solution of Wild- Cherry Compound*	15 gal.	Compound Syrup of Hypophosphites**	15 gal.
Glycerin	5 gal.	Sherry Wine	30 gal.
Thin Liquid Malt Extract	$2\frac{1}{2}$ gal.	Thick Caramel	$7\frac{1}{2}$ pt.

Mix thoroughly by agitation or stirring.

In preparing the finished tonic, mix the glycerin and malt extract and add this mixture and the compound syrup of hypophosphites to the sherry wine. Mix well and add the caramel; then mix this compound with the base wild-cherry compound. Let stand for a day or two, stirring occasionally; then strain and bottle.

This palatable tonic is a mild stimulant to appetite and digestion. It is beneficial during convalescence from illness and after surgical operations. It is acceptable to children and the aged and will not cause digestive disturbances.

Dose: Adults, 1 tablespoonful, preferably taken about $\frac{1}{2}$ hour before meals and also on retiring. Children may take 1 to 2 teaspoonfuls, according to age.

* BASE SOLUTION OF WILD-CHERRY COMPOUND

Alcoholic Solution of		Oil of Sweet Orange	30 fl. oz.
Gaduol	12 gal.	Oil of Anise	40 fl. oz.
{ Gaduol Alcoholic	{	Oil of Caraway	20 fl. oz.
Extract of		Leadfree Oil of Cassia	20 fl. oz.
Cod-Liver Oil		Artificial Oil of Bitter	
60% Alcohol to make		Almonds (Benzaldehyde)	4 fl. oz.
Mix thoroughly.	1 gal.	Hops Decoction†	48 gal.
Fluid Extract of Wild	13 $\frac{1}{10}$ gal.	Alcohol	20 gal.
Cherry†	25 gal.		

Dissolve the oils in the alcohol. Add the fluid extract and then the other ingredients. Mix thoroughly.

** COMPOUND SYRUP OF HYPOPHOSPHITES

Calcium Hypophosphite	6 oz.	Hydrochloric Acid (C.P.)	5 oz.
Sodium Hypophosphite	12 $\frac{1}{2}$ oz.	Iron Pyrophosphate	12 $\frac{1}{2}$ oz.
Potassium Hypophosphite	12 $\frac{1}{2}$ oz.	Granulated Sugar	210 lb.
Quinine Sulfate	6 oz.	Glycerin	14 $\frac{1}{4}$ gal.
Manganese Hypophosphite	7 $\frac{1}{2}$ oz.	Water	22 $\frac{1}{4}$ gal.
50% Solution of Hypo- phosphoric Acid	12 oz.		

Dissolve the hypophosphites in 5 gallons of water. To 5 gallons of water add the hydrochloric and hypophosphoric acids and dissolve the quinine sulfate in this mixture. Dissolve the iron pyrophosphate in 5 gallons of water. Mix these three solutions, add the remainder of the water, and stir well. Then dissolve the sugar in this mixture. Lastly, add the glycerin and mix well.

†FLUID EXTRACT OF WILD CHERRY

Ground Wild-Cherry Bark	200 lb.	Water	15 gal.
Glycerin	5 gal.	Alcohol	5 gal.

Macerate for 7 days; then pack in a percolator and exhaust with sufficient water to make 25 gallons. To this add:

Thick Caramel 32 fl. oz.

Mix thoroughly.

‡HOPS DECOCTION

Hops 10 lb. Water to make 48 gal.

Steep for 1 hour; then strain and press out. After cooling, filter to remove the resins present.

In preparing the base solution of wild-cherry compound, mix the oils with the alcohol, add the alcoholic solution of gaduol, then the fluid extract of wild cherry and mix well. Finally add the decoction of hops and mix well again.

RESTORATIVE TONIC

Ground Gentian	2 oz.	Ground Cloves	1/2 oz.
Ground Cinchona	2 oz.	Ground Sassafras	1 oz.
Ground Juniper Berries	1 oz.	Thiamin Chloride	
Ground Taraxacum	1/2 oz.	(Crystalline	
Ground Wild-Cherry Bark	2 oz.	Vitamin B ₁)	3 gr.
Ground Cascara Bark	4 oz.	Calcium Hypo-	
Ground Bloodroot	1 oz.	phosphite	4 oz.
Ground Bitter Orange Peel	1/2 oz.	Alcohol	
Ground Canada Snake Root	1/2 oz.	U.S.P.	25 oz. 288 min.
Ground Cinna-		Water	to make 1 gal.
mon	1/2 oz.		

Prepare the drugs for percolation. Mix the alcohol with enough water to make 1 gallon and percolate, finally adding enough water through the percolator to obtain 1 gallon of percolate. Dissolve the thiamin chloride and hypophosphite in the percolate by shaking. Color with caramel if desired.

This preparation is a general reconstructive tonic which acts as a stimulant to the appetite and digestion, tending to help regulate the vital organs and facilitate their functions and duties. It is an aid in building up body strength, restoring impaired tissues, enriching the blood, correcting unfavorable conditions due to lack of vitamin B₁, and aiding in the absorption and assimilation of food.

Directions for use: For adults, 1 teaspoonful in a little water 1/2 hour before each meal and before retiring; for children, according to age.

This product will contain 500 units of vitamin B₁ per fluid ounce.

HERB-VITAMIN B₁ COMPOUND

Ground Gentian	2 oz.	Ground Canada Snake	
Ground Cinchona Bark	2 oz.	Root	1/2 oz.
Ground Cinnamon Bark	1/2 oz.	Ground Cloves	1/2 oz.
Ground Bloodroot	1 oz.	Ground Wild Cherry	
Ground Bitter Orange		Bark	2 oz.
Peel	1/2 oz.	Ground Cascara Bark	4 oz.

Ground Taraxacum	1/2 oz.	Thiamin Chloride (Crys-	
Ground Juniper Berries	1 oz.	talline Vitamin B ₁	3 gr.
Ground Sassafras Bark	1 oz.	Glycerin	8 oz.
Gaduol	1 1/2 oz.	Leadfree Oil of Cassia	30 min.
Rochelle Salts	12 oz.	True Methyl Salicylate	60 min.
Calcium Glycerophosphate	3 oz.	Vanillin	30 gr.
Sodium Glycerophosphate	3 oz.	Alcohol	1 1/4 pt.
Beef Extract	4 oz.	Sugar	1 lb.
Iron Peptonate	1/2 oz.	Water	to make 1 gal.

Dissolve the flavoring oils in 1 ounce of alcohol. Mix the remainder of the alcohol with 1/2 gallon of water and add the glycerin. Mix the ground drugs, moisten well with the water-alcohol-glycerin mixture, pack in a percolator, cover tightly, and let macerate for 24 hours. Then percolate slowly, adding more water through the percolator to make a little less than 1 gallon of percolate. Dissolve the thiamin chloride in a little water and add; then add water to make 1 gallon. Dissolve the other ingredients in the percolate and add the flavoring solution. If a darker color is wanted, add caramel to suit.

This preparation is a general and reconstructive tonic which acts as a stimulant to the appetite and digestion, helping to regulate the functions of vital organs. It is an aid in building up body strength, restoring impaired tissues, enriching the blood, and facilitating the absorption and assimilation of food.

This preparation will contain 500 units of vitamin B₁ per fluid ounce.

Directions: Adults may take 1 or 2 teaspoonfuls in a little water, before meals. It may also be taken at bed time. Children may take according to age and condition.

Shake the bottle well before taking.

TONIC WITH VITAMIN B₁ COMPOUND

Fluid Extract of Gentian	1	oz.	32 min.
Fluid Extract of Yellow Dock	2	oz.	64 min.
Fluid Extract of Licorice Root	2	oz.	64 min.
Fluid Extract of Cinchona Bark	2	oz.	320 min.
Fluid Extract of Burdock Root	2	oz.	64 min.
Fluid Extract of Senna Leaves	1	oz.	32 min.
Sodium Citrate	2	oz.	64 gr.

Potassium Iodide	256	gr.	
Phenyl Salicylate (Salol)	384	gr.	
Thiamin Chloride (Crystalline Vitamin B ₁)	3	gr.	
Glycerin	4	fl. oz.	
Alcohol	20	fl. oz.	32 min.
Vanillin	20	gr.	
Oil Cassia	1	fl. dr.	
Methyl Salicylate, Natural or True	1/2	fl. dr.	
Sugar	8	oz.	
Water	1	gal.	

Dissolve the salol in the alcohol. Add to this solution the fluid extracts in the order listed. Dissolve the sodium citrate and potassium iodide in 2 pints of water and add the glycerin to the solution. Add the flavoring to the alcohol solution of salol. Now slowly add the aqueous solution to the alcoholic-fluid extract mixture, stirring constantly. Let stand for an hour or two; then filter and dissolve the sugar in the filtrate. Dissolve the thiamin chloride in a little water and add. Make up to 1 gallon with water.

This preparation will contain 500 units vitamin B₁ per fluid ounce. It is a general alterative tonic, helping to regulate the functions of vital organs.

Dose: Adults, 1 to 4 teaspoonfuls in a little water, before meals; children may take according to age.

COMPOUND GENERAL TONIC WITH VITAMIN B₁

Echinacea	3 oz.	Licorice Root	8 oz.
Gentian	4 oz.	Cinnamon	2 oz.
Cinchona Bark	6 oz.	Wintergreen	3 oz.
Dandelion	4 oz.	Cloves	2 oz.
Rhubarb	2 oz.	50% Alcohol	to make 6 pt.
Juniper Berries	4 oz.		

Have all ingredients in coarse powder form. Moisten with 50% alcohol and pack in a percolator. Pour on 50% alcohol to cover, close the percolator, and allow to stand for 24 hours. Then percolate slowly, adding 50% alcohol through the percolator until 6 pints of percolate have been obtained.

In this percolate dissolve:

Iron Peptonate	4 oz.	line Vitamin B ₁	3¾ gr.
Potassium Iodide	2 oz.	Syrupy Malt	1 pt.
Sodium Salicylate	2 oz.	Sugar	3 lb.
Thiamin Chloride Crystal-			

Mix thoroughly by agitation; then add 1 pint of fluid extract of cascara aromatic and mix again thoroughly.

All herb extracts precipitate more or less on standing and it is always advisable to allow the percolate to stand about 2 weeks and then filter before adding the other ingredients.

This general reconstructive tonic acts as a stimulant to the appetite and digestion, helping to regulate the functions of the vital organs. It is an aid in building up body strength, restoring impaired tissues, enriching the blood, helping correct unfavorable conditions due to lack of vitamin B₁, and facilitating in the absorption and assimilation of food.

Directions for use: Adults, 1 tablespoonful two or three times a day, after meals. If action becomes too strong, reduce the dose to ½ tablespoonful. Children may take it according to age and condition.

This product will contain 500 units of vitamin B₁ per fluid ounce.

WINE COMPOUND TONIC

Halibut Oil	96 drops	Extract	4 oz.
Thiamin Chloride (Crystalline Vitamin B ₁)	¾ gr.	Compound Syrup of Hypophosphites (National Formulary 6th Edition)	2 oz.
Sodium Benzoate	8 gr.	Syrup	2 oz.
Powdered Acacia	160 gr.	Sherry Wine	5 oz.
Water	1 oz.	Water	to make 1 pt.
Liquid Malt			

Triturate the first four ingredients together in a mortar. Transfer to colloid mill, add the water and emulsify. Then add the other ingredients in divided portions, mixing well after each addition. Finally add water to make 1 pint.

This preparation will contain 500 units of vitamin B₁ per fluid ounce and each teaspoonful will equal one teaspoonful of cod-liver oil. It is an efficient tonic which combines the vitamins A, B, D, and G with minerals in an agreeable form. It acts as a stimulant to the appetite and digestion; it is beneficial during convalescence and for growing children. It will supply vitamins and minerals in general run-down conditions.

Dose: Adults, 1 tablespoonful before meals and on retiring; children, 8 to 12 years of age, 2 teaspoonfuls three times a day, before meals; children 4 to 8 years, 1 teaspoonful three times a day, before meals.

COMPOUND TONIC

Solution of Iron Peptonate and Manganese (National Formulary, 4th or 6th Edition)	1 pt.	Potassium Glycero-phosphate	4 gr.
Thiamin Chloride (Crystalline Vitamin B ₁)	3/8 gr.	Sodium Glycero-phosphate	2 gr.
Calcium Glycero-phosphate	4 gr.	Manganese Glycero-phosphate	1/2 gr.
		Heavy Syrupy Malt Extract	1 1/2 fl. oz.
		Vanilla Extract	1 dr.

Rub up the glycerophosphates with a little of the solution of iron peptonate and manganese to a smooth paste. Dissolve the thiamin chloride in an additional portion of the solution and add to the first portion. Gradually add more, with constant agitation, until a perfect solution is obtained. Add malt extract and vanilla and mix well.

This preparation will contain 500 units of vitamin B₁ per fluid ounce. It is a general tonic which acts as a stimulant to the appetite and digestion and is a desirably hematinic. It is beneficial during convalescence and after surgical operations. It is particularly acceptable to children and the aged.

Directions: Adults, 1 tablespoonful after each meal, plain or diluted with water or milk; children, 1 to 2 teaspoonfuls, according to age.

IRON PEPTONATE AND VITAMIN B₁ COMPOUND

Iron and Manganese Peptonate (Merck)	128 gr.	Cascarine	20 gr.
Thiamin Chloride (Crystalline Vitamin B ₁)	3/8 gr.	Pepsin Powder	32 gr.
Calcium Glycero-phosphate	64 gr.	Warm Water	10 oz.
Sodium Glycero-phosphate	64 gr.	Alcohol U.S.P.	1 6/10 oz.
		Syrup	4 oz.
		Water	to make 1 pt.

Mix in the order listed, except the thiamin chloride, and add some powdered talc; let stand for several days and filter clear. Dissolve the thiamin chloride in a little water and add to the clear filtrate.

The uses and directions given under the preceding formula are applicable to this formula also.

Each fluid ounce of this preparation will contain 500 units of vitamin B₁.

NUTRIENT TONIC

Liquid Concentrated Liver		Concentrated Orange Syrup	
Extract (Armour)	14.76 cc.	(For Fountains)	56 cc.
Red Bone Marrow		Glycerin	2.46 cc.
Powder (Armour)	5.2 g.	Alcohol U.S.P.	2 oz.
Iron and Ammonium		Heavy Malt	
Citrate (Green)	6.25 g.	Extract	to make 12 oz.

Add the iron citrate to the alcohol and follow with the bone marrow and liver extract. Stir well and add the orange syrup and glycerin. Warm and shake if required. Dilute the mixture to 12 ounces with the heavy malt extract.

Dose: The ordinary dose for adults is 2 to 4 teaspoonfuls three times daily after meals. It may be taken diluted with an equal amount of cold water or as is. Children may take it according to age. Keep in a cool place.

VITAMIN B COMPLEX SYRUP

Thiamin Chloride	192 mg.	Nicotinic Acid	3.2 g.
Riboflavin	77 mg.	Salicylic Acid (Dissolved	
Dermatitis Factor		in 30 Minims of	
	200 Micrograms	Alcohol)	8 gr.
Filtrate Factor		Orange Syrup*	5 oz.
	20 Rat Growth Units	Malt Syrup**	to make 16 oz.

Triturate the thiamin chloride, riboflavine, and nicotinic acid with part of the malt syrup, adding the other ingredients and mixing well. Dissolve the salicylic acid in the alcohol and add to the mixture, when all others have been incorporated, by the use of colloid mill or homogenizer.

* ORANGE SYRUP

The orange syrup should be made with one good orange to the pint, grating peel which should be rubbed in a mortar with granulated sugar to get both color and flavor, then add the squeezed juice and strain carefully through gauze into a heavy simple syrup (U.S.P.).

**MALT SYRUP

The malt syrup is the same as was used in making beer (sold in the market) but without the hops. It is a thick syrup having a color about like a light whiskey.

The dermatitis factor and filtrate factor can be found by tests if thiamin chloride, riboflavine and nicotinic acid are used.

This palatable syrup is useful where vitamin B complex is needed.

Dose: Children, 1 to 2 teaspoonfuls a day; adults, 2 to 4 teaspoonfuls a day.

Keep in a cool place and shake well before taking or giving.

FEMALE TONIC

Cramp Bark	$\frac{3}{4}$ oz.	Squaw Vine	$\frac{1}{2}$ oz.
Partridge Berry	$\frac{3}{4}$ oz.	Cassia	1 oz.
Poplar Bark	1 oz.	Cloves	15 gr.
Scutellaria	$\frac{1}{2}$ oz.	Thiamin Chloride	
Wild Yam	$\frac{1}{2}$ oz.	(Crystalline Vitamin B ₁)	$\frac{3}{8}$ gr.
Unicorn Root	1 oz.	Alcohol	2 oz.
Beth Root	$\frac{1}{2}$ oz.	Water	10 oz.
Blue Cohosh Root	$\frac{1}{4}$ oz.	Syrup	1 pt.

Have all the drugs in a No. 20 powder form, pour 10 ounces of hot water on the mixed powders, macerate 24 hours, and percolate. When the liquid ceases to drop, pour on enough hot water to make the percolate measure 10 ounces. Add the alcohol and the thiamin chloride, which has previously been dissolved in a little water, and finally add enough syrup to make the finished product measure 1 pint.

This compound is a mild sedative and antispasmodic, which also acts as a tonic and lessens the discomforts due to female functional disorders.

Dose: One tablespoonful every 4 hours for adults. It may be taken two or three times a day if preferred and the dose may be increased or decreased as conditions may suggest.

This compound will contain 500 units of vitamin B₁ per fluid ounce.

COMPOUND WINE AND BEEF EXTRACT

Iron and Ammonium		Alcohol	1 oz.
Citrate	$\frac{1}{4}$ oz.	Sweet Catawba Wine	8 oz.
Beef Extract		Port Wine	to make 1 pt.
(Liebig Type)	$\frac{1}{4}$ oz.		
Thiamin Chloride (Crystalline Vitamin B ₁)	$\frac{3}{8}$ gr.		

Dissolve the beef extract and the iron and ammonium citrate in the wine, add the alcohol and thiamin chloride, and filter.

This preparation will give tone to the system and help build up strength.

Dose: Adults, $\frac{1}{2}$ to 1 tablespoonful three or four times a day, after or between meals; children, a teaspoonful to a dessert-spoonful according to age.

This product will contain 500 units of vitamin B₁ per fluid ounce.

ORANGE-FLAVORED VITAMIN EMULSION

Halibut Oil	128 min.	Fresh Orange Syrup to make 1 pt.	
Viosterol	80 min.	Salicylic Acid	8 gr.
Powdered Acacia	180 gr.	Dissolved in Alcohol	30 min.
Malt Syrup	5 oz.		

Rub up the first two ingredients with the powdered acacia in a mortar, then add others and mix thoroughly, in a colloid mill or homogenizer.

The malt syrup is the same as used in making beer but without the hops. It is a thick syrup having a color of a light whisky. The orange syrup should be made with one good orange to the pint, grating the peel which should be rubbed in a mortar with granulated sugar to get both color and flavor, then adding the squeezed juice and straining carefully through gauze into a heavy simple syrup (U.S.P.).

This is a palatable compound which supplements diets deficient in vitamins A and D.

Dosage: Adults, 4 to 6 teaspoonfuls daily. Children, 2 or 3 teaspoonfuls daily. It may be taken plain or mixed with water or fruit juices.

Shake well before using, keep in a cool place.

COMPOUND EXTRACT OF COD-LIVER OIL

(Gaduol Compound)

Gaduol	1.28 oz.	Soluble Licorice	
Salicylic Acid	64 gr.	Extract	1 oz.
Compound Syrup of		Benzaldehyde	40 min.
Hypophosphites (Na-		Glycerin	8 oz.
tional Formulary)	8 oz.	Syrup	32 oz.
Syrup of Wild Cherry		Caramel	2 oz.
(U.S.P.)	24 oz.	Alcohol, U.S.P.	12.8 oz.
		Water	to make 1 gal.

Mix everything together except the syrups and the caramel. Add powdered rotten stone and filter clear. Then add the syrups and the caramel and finally enough water to make 1 gallon.

This is recommended as a tonic and adjunct in the treatment of

bronchial troubles, deep-seated and obstinate cough, and hoarseness due to colds. It is also useful in general debility and for run-down systems.

Directions: Adults, 1 tablespoonful before meals and before retiring. Best taken $\frac{1}{2}$ hour before meals; children, under 5 years $\frac{1}{2}$ teaspoonful, 5 to 10 years, 1 to 2 teaspoonfuls, 10 years and over, 2 teaspoonfuls to 1 tablespoonful.

Shake the bottle well before using.

CHOCOLATE-FLAVORED VITAMIN COMPOUND

Powdered Iron and Ammonium Citrate	30 gr.	Vitamin C (Ascorbic Acid)	24 gr.
Calcium Glycero-phosphate	60 gr.	Vitamin D (Viosterol)	35 $\frac{1}{2}$ min.
Powdered Sodium Chloride	30 gr.	Vitamin G (Powdered Brewer's Yeast)	192 gr.
Vitamin A (Halibut-Liver Oil)	2 min.	Powdered Egg Albumen	1 oz.
Vitamin B (Thiamin Chloride)	$\frac{1}{2}$ gr.	Powdered Cocoa	4 oz.
		Powdered Malt	1 oz.
		Powdered Cane Sugar	4 oz.
		Powdered Skim Milk	
		to make	1 lb.

Mix the dry ingredients thoroughly by sifting. Add the viosterol and halibut-liver oil and mix again.

Pack in tin or glass containers with tight-sealing covers.

Each ounce (4 heaping teaspoonfuls) contains approximately:

Vitamin A	4000 U.S.P. Units	Vitamin C	2000 Internatl. Units
Vitamin B ₁	300 Internatl. Units	Vitamin D	2000 U.S.P. Units
Vitamin G	40 S-B Units		

This is a desirable strengthening beverage for use in convalescence and in correcting vitamin deficiencies. Growing and delicate children, elderly persons, mothers and overworked men and women will also find it helpful.

Dosage: Adults, 2 teaspoonfuls added to a glass or cup of milk, which may be cold or warm. It is an advantage to first rub the powder up to a smooth paste with a small amount of the milk, then adding the balance. This dose may be taken two or three times a day between or with meals. Children may take it according to age.

CHOCOLATE-FLAVORED TONIC BEVERAGE

Calcium Glycero-phosphate	60 gr.	Powdered Egg Albumen	1 oz.
Thiamin Chloride (Crystalline Vitamin B ₁)	1/2 gr.	Powdered Cocoa	4 oz.
Powdered Iron and Ammonium Citrate	30 gr.	Powdered Malt	1 oz.
		Powdered Cane Sugar	4 oz.
		Powdered Skim Milk to make	1 lb.

Triturate the thiamin chloride with the glycerophosphate and mix intimately with the other ingredients by sifting.

This nutritive tonic beverage may be used in convalescence, for growing and delicate children, elderly persons, mothers, and working men and women.

Dosage: Adults, 1 or 2 teaspoonfuls added to a glass or cup of milk, which may be cold or warm. Rubbing the powder to a smooth paste with a small amount of the milk and then adding the balance of the milk is suggested. This dose may be taken two or three times a day between or with meals. Children may take it according to age.

Each ounce (4 heaping teaspoonfuls) will contain approximately 300 units of vitamin B₁.

Pack in tin or glass containers with tight-sealing covers.

COMPOUND TONIC TABLETS

Formula No. 1

Each tablet contains:		Cascarine	1/6 gr.
Iron Peptonate	1 gr.	Powdered Capsicum	1/64 gr.
Manganese Peptonate	1/4 gr.	Powdered Cinchona	
Blaud Mass	1/2 gr.	Bark	1/8 gr.
Powdered Gentian Extract	1/2 gr.	Thiamin Chloride	
Powdered Pepsin	1/4 gr.	(Crystalline Vitamin B)	1/166 gr.
Papain	1/4 gr.	Oil of Cassia	1/10 min.
Calcium Glycerophosphate	1/2 gr.	Base Powder*	sufficient
Precipitated Calcium Carbonate	1/2 gr.		

Mix thoroughly and compress.

This tablet will build up body strength, enriching the blood, increasing the appetite and helping overcome a general run-down condition.

Each tablet will contain 125 units of vitamin B.

Directions: Adults may take one or two tablets before each meal and at bedtime if desired. Children may take it according to age.

* Sugar and starch in equal parts with a trace of talc to make the tablet run clean in the pressing machine.

Formula No. 2

Each tablet contains:

Powdered Willow		Powdered Cinchona	
Charcoal	1 gr.	Bark Extract	$\frac{1}{4}$ gr.
Powdered Dandelion		Oleoresin of	
Extract	$\frac{1}{4}$ gr.	Ginger	$\frac{1}{10}$ gr.
Powdered Cardamon Seed		Oleoresin of	
Extract	$\frac{1}{8}$ gr.	Capsicum	$\frac{1}{20}$ gr.
Powdered Chinese Rhu-		Cascarine	$\frac{1}{2}$ gr.
barb Root Extract	$\frac{1}{4}$ gr.	Calcium Glycero-	
Powdered Licorice		phosphate	$\frac{1}{2}$ gr.
Root Extract	$\frac{1}{8}$ gr.	Papain	$\frac{1}{2}$ gr.
Powdered Culver's		Iron Peptonate	$\frac{1}{4}$ gr.
Root Extract	$\frac{1}{8}$ gr.	Thiamin Chloride	
Powdered Gentian		(Crystalline Vita-	
Root Extract	$\frac{1}{2}$ gr.	min B ₁)	$\frac{1}{166}$ gr.
Powdered Valerian		Oil of Juniper	
Root Extract	$\frac{1}{8}$ gr.	Berries	$\frac{1}{10}$ min.
Powdered California		Base Powder*	if needed
Bark Extract	$\frac{1}{8}$ gr.		

Mix thoroughly and compress.

Action, uses, and dosage given for formula No. 1 are applicable to this formula also. Each tablet will contain 125 units of vitamin B.

* See under Formula No. 1.

Formula No. 3

Each tablet contains:

Iron Peptonate	$\frac{1}{4}$ gr.	Powdered Pepsin	$\frac{1}{2}$ gr.
Calcium Glycero-		Powdered Ginger	$\frac{1}{2}$ gr.
phosphate	$\frac{1}{2}$ gr.	Thiamin Chloride	
Sodium Glycero-		(Crystalline Vita-	
phosphate	$\frac{1}{2}$ gr.	min B ₁)	$\frac{1}{166}$ gr.
Copper Sulfate	$\frac{1}{60}$ gr.	Oil of Cassia	$\frac{1}{10}$ min.
Cascarine	$\frac{1}{6}$ gr.	Sugar	1 gr.
Heavy Magnesium		Base Powder*	
Oxide	1 gr.		
Precipitated Calcium			
Carbonate	1 gr.		

Mix thoroughly and compress.

Each tablet will contain 125 units of vitamin B. Tonic action and dose given for formula No. 1 are applicable to this formula also.

* See under Formula No. 1.

Formula No. 4

Each tablet contains:

Thiamin Chloride (Crystalline Vita- min B ₁)	$\frac{1}{166}$ gr.	Solid Gentian Extract	$\frac{1}{2}$ gr.
Iron Peptonate	1 gr.	Powdered Capsicum	$\frac{1}{16}$ gr.
Powdered Juniper Berries	$\frac{1}{2}$ gr.	Powdered Valerian Root	$\frac{1}{2}$ gr.
Powdered Chinese Rhubarb	$\frac{1}{2}$ gr.	Powdered Cinchona Bark	$\frac{1}{2}$ gr.

Mix thoroughly and compress.

Each tablet will contain 125 units of vitamin B. Action and dosage as in formula No. 1.

COMPOUND TONIC CAPSULES

Each tablet contains:

Iron and Ammonium Citrate	$\frac{1}{4}$ gr.	Vitamin A (Halibut Oil)	$\frac{1}{3}$ min.
Iron Peptonate	1 gr.	Vitamin B (Thiamin Chloride)	$\frac{1}{100}$ gr.
Manganese Peptonate	$\frac{1}{4}$ gr.	Vitamin C (Ascorbic Acid)	$\frac{3}{8}$ gr.
Copper Sulfate	$\frac{1}{60}$ gr.	Vitamin D (Viosterol)	1 $\frac{35}{100}$ gr.
Calcium Glycero- phosphate	$\frac{1}{2}$ gr.	Vitamin G (Powdered Brewer's Yeast)	3 gr.
Liver Extract	1 gr.		
Red Bone Marrow Extract	$\frac{1}{2}$ gr.		
Cascara Extract	$\frac{1}{4}$ gr.		

Mix thoroughly and put up in capsule form.

Each capsule will contain:

Vitamin A	9000 U.S.P. units	Vitamin D	900 U.S.P. units
Vitamin B	100 Internatl. units	Vitamin G	10 Sherman units
Vitamin C	500 Internatl. units		

This combination of minerals and vitamins is an aid in building up body strength, enriching the blood, increasing the appetite, correcting vitamin deficiencies and helping to overcome a general run-down condition.

Dosage: Adults, one to three capsules daily; a larger dose may be taken if conditions demand; children, one to two capsules daily.

EXPECTORANT COMPOUND

Formula No. 1

Potassium Guaiacol Sulfonate	1024	gr.
Citric Acid	768	gr.
Sodium Citrate	2304	gr.
Ammonium Chloride	1024	gr.
Tincture of Cocillana	10	fl. oz. 326 min.
Compound Fluid Extract of Squills	6	fl. dr. 24 min.
Fluid Extract of Wild Cherry	2	fl. oz. 320 min.
Fluid Extract of Jamaica Dogwood	4	fl. dr. 16 min.
Menthol	16	gr.
Chloroform	4	fl. dr. 16 min.
Alcohol U.S.P.	12	fl. oz.
Sugar	4½	lb.
Water	to make	1 gal.

Dissolve the first four ingredients in 3 pints of water. Mix the fluid extracts and tincture with the alcohol in which the menthol has been previously dissolved. Add the chloroform to this alcoholic solution. Put the sugar with the water solution into a kettle and heat gently until dissolved. Remove from the fire and add the alcoholic mixture, stirring thoroughly. Color to suit with caramel.

This preparation is suitable for the relief of coughs due to common colds, helping to promote easy expectoration and soothing irritated mucous membranes of the throat.

Dose: Adults, 1 teaspoonful every 2 or 3 hours; children of 14 years or older may take adult dose; children of 6 years, $\frac{1}{3}$ to $\frac{1}{2}$ teaspoonful every 2 or 3 hours; other ages, in proportion.

Formula No. 2

Beechwood		Alcohol	32 oz.
Creosote	1 oz.	Fluid Extract	
Terpin Hydrate	1 oz.	of Squills	2 oz.
Tartar Emetic	24 gr.	Fluid Extract	
Calcium Glycero-		of Senega	2 oz.
phosphate	2 oz.	Fluid Extract of	
Lactic Acid	1 oz.	Jamaica	
Glycerin	16 oz.	Dogwood	4 oz. 128 min.

Cascarine	2 oz.	Special Flavoring	1 oz.
Menthol	160 gr.	{ Lemon Oil	1 oz. }
Eucalyptol	20 min.	{ Sweet Orange Oil	1/2 oz. }
Ammonium Chloride	3 oz.	{ Vanillin	20 gr. }
Honey	8 oz.	{ Alcohol U.S.P.	8 oz. }
		Sugar	4 lb.
		Water	to make 1 gal.

Mix the first ten ingredients with water to make $\frac{1}{2}$ gallon. Add 3 ounces of powdered rotten stone and 4 ounces of animal charcoal to decolorize. Add the other ingredients, dissolve the sugar in the liquid, and finally add enough water to make 1 gallon.

It is advisable to reserve 8 ounces of the alcohol and dissolve the menthol and eucalyptol in it, adding this to the remainder of the batch after it has stood about 1 week.

This expectorant compound is recommended for the relief of coughs due to common colds, hoarseness and huskiness of the voice caused by cold, dampness or exposure; also, for the relief of minor bronchial irritations. It promotes expectoration and soothes the irritated mucous membranes of the throat.

Directions: Adults, 1 teaspoonful every 2 or 3 hours, or $\frac{1}{2}$ teaspoonful at more frequent intervals if conditions require; children of 6 years may take $\frac{1}{2}$ teaspoonful every 2 or 3 hours; children of 14 years and older may take adult dose; other ages, in proportion.

Shake the bottle well before taking.

Formula No. 3

Tincture of Euphorbia*	2 oz.
Syrup of Squills (U.S.P.)	1 oz.
Syrup of Tolu (U.S.P.)	4 oz.
Ammonium Chloride	1 dr.
Sodium Benzoate	5 gr.
Decolorized Cascarine	1 dr.
Glycerin	1 fl. oz.
Honey	$\frac{1}{2}$ fl. oz.
Chloroform	32 min.
Menthol-Terpin Hydrate Solution**	$\frac{1}{2}$ fl. oz.
Special Percolate†	2 oz.
Simple Syrup	to make 16 ounces

Mix the tincture of euphorbia, syrup of squills, and special percolate; dissolve the ammonium chloride, sodium benzoate, and decolorized cascarine in 4 ounces of simple syrup; add to this the glycerin and honey,

mix well, add to first mixture, and mix again. Now add the syrup of Tolu and enough simple syrup to make 1 pint.

Filter clear and color with certified red food color.

For therapeutic action and dosage see Formula No. 2.

*TINCTURE OF EUPHORBIA

Euphorbia (No. 20 Powder) 4 oz. 95% Alcohol to make 20 oz.

Macerate the powder in 1 pint of alcohol for 24 hours. Pack in a percolator, pour on the liquid and allow to stand for 12 to 24 hours. Then percolate slowly, adding enough alcohol through the percolator to make 20 fluid ounces of finished product.

**MENTHOL-TERPIN HYDRATE

(Menthol	10 gr.)
(Terpin Hydrate	60 gr.)
(Alcohol	2 oz.)

Mix and Dissolve.

†SPECIAL PERCOLATE

(Jamaica Dogwood (No. 50 Powder)	256 gr.)
(Cocillana Bark	256 gr.)
(Horehound Herb	2 oz.)
(Bloodroot	384 gr.)
(Powdered Eucalyptus Leaves	120 gr.)
(95% Alcohol	12 oz.)
(Water	4 oz.)

Mix the alcohol and water, pour over the mixed herbs, and macerate for 24 hours. Pack in the percolator, pour on the liquid and let stand (covered) for 12 to 24 hours. Then percolate slowly, adding 75% alcohol through the percolator to make 16 fluid ounces.

Formula No. 4

Beechwood Creosote	1 oz.	Menthol	160 gr.
Terpin Hydrate	1 oz.	Eucalyptol	20 min.
Tartar Emetic	24 gr.	Ammonium Chloride	3 oz.
Calcium Glycero-		Honey	8 oz.
phosphate	2 oz.	Alcohol	32 oz.
Lactic Acid	1 oz.	Sugar	4 lb.
Glycerin	16 oz.	Oil of Peach Blossoms	2 dr.
Fluid Extract of Squills	2 oz.	Certified Green Food	
Fluid Extract of Senega	2 oz.	Color	to suit
Decolorized Cascarine	2 oz.	Water	to make 1 gal.

Mix the first nine ingredients with the alcohol and with enough water to make $\frac{1}{2}$ gallon. Add powdered rotten stone and 4 ounces of powdered animal charcoal to decolorize.

Let stand for 2 weeks, with frequent agitation or shaking, then filter. To the clear filtrate, add the other ingredients and finally enough water

to make 1 gallon. Dissolve the sugar by cold agitation or by cold percolation when made in larger quantities.

This expectorant compound is recommended for the relief of coughs due to common colds, hoarseness and huskiness of the voice caused by cold, dampness, or exposure; also for the relief of minor bronchial irritations. It helps promote expectoration and soothes the irritated mucous membranes of the throat.

Directions: Adults, 1 teaspoonful every 2 or 3 hours, or $\frac{1}{2}$ teaspoonful at more frequent intervals if conditions require; children of 6 years may take $\frac{1}{2}$ teaspoonful every 2 or 3 hours; children of 14 years and older may take adult dose; other ages, in proportion.

Shake the bottle well before taking.

Formula No. 5

Cocillana-Horehound		Chloroform	2 min.
Infusion	$\frac{1}{4}$ oz.	Tincture of Euphorbia*	2 dr.
(Cocillana Bark 16 gr.)		Syrup of Squills	
(Powdered Jamaica		(U.S.P.)	3 dr.
Dogwood 16 gr.)		Ammonium Chloride	5 gr.
(Horehound Herb 30 gr.)		Sodium Benzoate	5 gr.
(Powdered		Menthol	$\frac{1}{8}$ gr.
Bloodroot 20 gr.)		Syrup of Tolu to make	1 oz.
(Hot Water $\frac{1}{2}$ oz.)			

Macerate for an hour, strain, and filter clear.

Dissolve the menthol in the tincture of euphorbia, add the chloroform, and then the cocillana-horehound infusion. Add the syrup of Squills, dissolve the ammonium chloride and sodium benzoate in the mixture, and add the syrup of tolu.

Filter clear and color with cherry-shade certified food color.

This expectorant compound is recommended for the relief of coughs due to common colds, hoarseness and huskiness of the voice caused by cold, dampness, or exposure; also for the relief of minor bronchial irritations. It promotes expectoration and soothes the irritated mucous membranes of the throat.

Directions: Adults, 1 teaspoonful every 2 or 3 hours, or $\frac{1}{2}$ teaspoonful at more frequent intervals if conditions require; children of 6 years may take $\frac{1}{2}$ teaspoonful every 2 or 3 hours; children of 14 years and older may take adult dose; other ages, in proportion.

Shake the bottle well before taking.

* See under formula No. 3.

Formula No. 6

Ground White			Eucalyptol	22 min.
Pine Bark	5 oz.	370 gr.	Chloroform	1½ oz. 16 min.
Ground Wild			Alcohol	1 pt.
Cherry Bark	10 oz.	100 gr.	Bitterless Fluid	
Ground			Cascara	8 oz.
Spikenard	1 oz.	203 gr.	Ammonium	
Ground Sassa-			Chloride	1 oz. 75 gr.
fras Bark	1 oz.	75 gr.	Strained Honey	8 oz.
Ground			Glycerin	8 oz.
Ipecac Root	½ oz.	38 gr.	Gaduol (Merck)	1½ oz.
Ground Hore-			Granulated	
hound Leaves	5 oz.	370 gr.	Sugar	4 lb.
Ground			Syrup of Yerba	
Grindellia	1 oz.	203 gr.	Santa Aromatic	
Ground Balm			(N.F.)	1 pt.
Gilead Buds	1 oz.	203 gr.	Water to make	1 gal.
Menthol	11 gr.			

Mix the powdered herbs and pour over them 4 pints of boiling water. Let stand for 12 hours, then pour off the liquid and pack the drugs in a percolator. Pour the liquid over the drugs in the percolator and allow to percolate slowly, passing enough additional hot water through the percolator to give 4 pints of percolate.

Dissolve the ammonium chloride in this percolate, then add the honey, glycerin, and sugar. Stir until dissolved, warming gently if necessary to effect complete solution. Mix the alcohol and the gaduol and dissolve the menthol, eucalyptol, and chloroform in the mixture. Then add the cascara and stir well. Mix this with the percolate from the drugs, then add the syrup of yerba santa aromatic and finally add enough hot water to make 1 gallon of finished product.

This preparation is good for the relief of coughs due to common colds, hoarseness, and huskiness of the voice caused by cold, dampness, or exposure; also for the relief of minor bronchial irritations. It promotes expectoration and soothes the irritated mucous membranes of the throat.

Directions: Adults, 1 teaspoonful every 2 or 3 hours; children, 6 years, ⅓ to ½ teaspoonful every 2 or 3 hours; 14 years and over may take adult dose, other ages, in proportion.

Shake the bottle well before taking.

Formula No. 7

Ground Thyme	3.5 oz.	Alcohol	1.4 oz.
Glycerin	1.5 oz.		

Pack the thyme moistened with a little of the other two ingredients previously mixed into a percolator and let stand for 1 day. Then add the balance of the liquid and let stand for 3 days. Proceed with percolation, adding water in small quantities to make 8 ounces of percolate. To this add:

Potassium Bromide	22 gr.	Water	to make 1 pt.
Granulated Sugar	10 oz.		

Shake well until the sugar is dissolved.

This is an expectorant for the relief of coughs due to colds. It is especially recommended for children.

Dose: For adults, 2 or 3 teaspoonfuls every 2 or 3 hours. Children 6 to 10 years of age, 1 teaspoonful; 2 to 6 years of age, $\frac{1}{2}$ teaspoonful.

Formula No. 8

Ground White Pine Bark	6 oz.	Ground Sassafras	
Ground Wild Cherry Bark	3 oz.	Bark	2 oz.
Ground Aralia	1 oz.	Ground Cudbear	0.5 oz.
Ground Balsam of		Glycerin	6.4 oz.
Poplar Buds	1 oz.	Alcohol	6.4 oz.
Ground Bloodroot	1 oz.	Water	to make 1 gal.

Mix the drugs for percolation. Mix the last three ingredients for menstrum. Percolate and use enough water through the percolator to obtain 1 gallon of percolate.

This is used to make all the various combinations. Therefore, do not add chloroform. If this is to be bottled as it is, add 256 minims of chloroform.

Formula No. 9

Menthol	20 gr.	White Pine Expectorant	
Alcohol	enough	(Formula No. 8) to make 1 gal.	
	to cut		

Mix thoroughly.

Formula No. 10

Fluid Extract of Tar	4 oz.	White Pine Expectorant	
Chloroform	256 min.	(Formula No. 8) to make 1 gal.	

Formula No. 11

Fluid Extract of Tar	4 oz.	White Pine Expectorant
Honey	1 pt.	(Formula No. 8) to make 1 gal.
Chloroform	256 min.	

Mix thoroughly.

This expectorant is recommended for the treatment of coughs, colds, croup, laryngeal and bronchial inflammation, rawness and soreness of throat and chest due to common colds.

Dosage: Adults, 1 or 2 teaspoonfuls every 2 hours; children over 5 years, $\frac{1}{2}$ to 1 teaspoonful.

Shake the bottle well before taking or giving.

Formula No. 12

Ground White Pine Bark	8 oz. 336 gr.	Powdered Rotten Stone	$\frac{1}{2}$ oz.
Ground Wild Cherry Bark	10 oz. 100 gr.	Alcohol (U.S.P.)	1 pt.
Ground Spikenard	1 oz. 203 gr.	Menthol	11 gr.
Ground Balm Gilead Buds	1 oz. 203 gr.	Eucalyptol	22 min.
Ground Sassafras Bark	1 oz. 75 gr.	Chloroform	256 min.
Ground Ipecac	$\frac{1}{2}$ oz. 38 gr.	Ammonium Chloride	1 oz. 75 gr.
Ground Sanguinaria	1 oz. 75 gr.	Honey	8 oz.
Gaduol		Bitterless Fluid	
Horehound	2 oz. 406 gr.	Cascara*	8 oz.
Ground Grindelia	1 oz. 203 gr.	Benzyl Benzoate**	$\frac{1}{2}$ oz.
Gaduol (Merck)	128 min.	Beechwood	
Oil Tar (U.S.P.)	128 min.	Creosote	2 dr.
		Granulated Sugar	5 lb.
		Water to make	1 gal.

Mix the first nine ingredients in a large pan. Prepare the menstrum for percolation by mixing the gaduol, oil of tar, powdered rotten stone and alcohol with 4 pints of water, and filter clear. Use this clear filtrate as menstrum. Moisten the drugs well with a mixture of alcohol and water. Let stand for a few hours well covered and then pack the drugs into a percolator. Pour on the balance of the mixed alcohol and water and open the pet cock until it starts to drip. Shut off again and let stand for

2 or 3 days. Then proceed with the percolation in the regular way until 4 pints of percolate have been collected, adding plain water through the percolator.

Place the sugar in a gallon bottle and pour on top of it a mixture of the menthol, eucalyptol, and chloroform and then add the percolate and the remaining ingredients; finally add enough water to make 1 gallon. Dissolve the sugar by the cold process, shaking the bottle until it is completely dissolved.

This expectorant compound is recommended for the relief of coughs due to common colds, hoarseness and huskiness of the voice caused by cold, dampness or exposure; also for the relief of minor bronchial irritations. It promotes expectoration and soothes the irritated mucous membranes of the throat.

Directions: Adults, 1 teaspoonful every 2 or 3 hours, or $\frac{1}{2}$ teaspoonful at more frequent intervals if conditions require; children of 6 years may take $\frac{1}{2}$ teaspoonful every 2 or 3 hours; children of 14 years and older may take adult dose; other ages, in proportion.

Always shake the bottle well before taking.

* See under formula No. 13.

** May be omitted if desired.

Formula No. 13

Ground White			Gaduol		
Pine Bark	5	oz. 370 gr.	(Merck)	128	min.
Ground Wild			Oil of Tar		
Cherry Bark	10	oz. 100 gr.	(U.S.P.)	128	min.
Ground			Powdered Rotten		
Spikenard	1	oz. 203 gr.	Stone	$\frac{1}{2}$	oz.
Ground Balm			Alcohol, (U.S.P.)	1	pt.
Gilead Buds	1	oz. 203 gr.	Menthol	11	gr.
Ground			Eucalyptol	22	min.
Sassafras	1	oz. 75 gr.	Chloroform	256	min.
Ground Ipecac	$\frac{1}{2}$	oz. 38 gr.	Honey	8	oz.
Ground			Sugar	5	lb.
Sanguinaria	1	oz. 75 gr.	Bitterless Fluid		
Ground Hore-			Cascara*	8	oz.
hound Leaves	5	oz. 370 gr.	Water to make	1	gal.
Ground			Ammonium		
Grindelia	1	oz. 203 gr.	Chloride	1	oz. 75 gr.

Prepare the menstrum for percolation by mixing the oil of tar, gaduol, powdered rotten stone, and alcohol with 4 pints of water and filter clear

through paper. Mix the ground drugs (first nine ingredients inclusive) and place in a large pan. Moisten these with the alcohol-water menstrum. Let stand for a few hours well covered and then pack the drugs into a percolator. Pour on the balance of the alcohol-water mixture and open the pet cock until it begins to drip; then shut off again and let stand 2 or 3 days. Proceed with the percolation in the regular way until 4 pints of percolate have been collected, adding plain water through the percolator.

Place in a gallon bottle the granulated sugar and pour on top of it a mixture of the menthol, eucalyptol, and chloroform, then add the percolate, and then the other ingredients; finally, add enough water to fill the bottle. Dissolve the sugar cold, shaking the bottle till it is dissolved.

This preparation is recommended for the relief of coughs due to common colds, hoarseness and huskiness of the voice caused by cold, dampness or exposure; also for the relief of minor bronchial irritations. It promotes expectoration and soothes the irritated mucous membranes of the throat.

Dose: Same as Formula No. 11.

*BITTERLESS FLUID CASCARA

Ground Cascara Bark	8 lb.	Powdered Magnesium Oxide	1 lb.
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Mix well, moisten well with hot water, and set aside for 2 hours. Then pack into a percolator and immediately start percolation with hot water until the percolate comes through colorless showing that the drug has been exhausted. Then boil the percolate down to 1 gallon. If this is made up for stock to be used in the various cough-syrup formulas, it is best to preserve it by adding 1/2 ounce of sodium benzoate while hot.

Formula No. 14

Ground		Ground	
Tamarack Bark	1 oz. 203 gr.	Spikenard	1 oz. 203 gr.
Ground		Ground Sassa-	
Horehound	5 oz. 370 gr.	fras Bark	1 oz. 75 gr.
Ground		Ground Ipecac	1/2 oz. 38 gr.
Grindelia	1 oz. 203 gr.	Red Spruce	
Ground Wild		Gum	1 oz. 203 gr.
Cherry Bark	8 oz. 336 gr.	Alcohol	
Ground White		(U.S.P.)	1 pt.
Pine Bark	5 oz. 370 gr.	Powdered Rot-	
Ground		ten Stone	1/2 oz.
Sanguinaria	1 oz. 75 gr.	Menthol	11 gr.
Ground Balm		Eucalyptol	22 min.
Gilead Buds	1 oz. 203 gr.	Chloroform	256 min.

Bitterless Fluid			Honey	8 oz.
Cascara	8 oz.		Granulated	
Ammonium			Sugar	5 lb.
Chloride	1 oz. 75 gr.		Water to make	1 gal.

Mix the ground drugs in a large pan. Prepare the menstrum by mixing the red spruce gum, alcohol, powdered rotten stone, and 4 pints of water and filter clear through paper. Use this filtrate as menstrum in percolating as follows. Moisten the ground drugs well and let stand for a few hours, well covered, then pack into a percolator. Pour on the balance of the menstrum and open the pet cock until it starts to drip; then shut off again and let stand for 2 or 3 days. Proceed with the percolation in the regular way until 4 pints of percolate have been collected, adding plain water through the percolator as necessary.

Place the sugar in a gallon bottle and pour on top a mixture of the menthol, eucalyptol and chloroform and then add the percolate. Finally add the remaining ingredients and enough water to make 1 gallon. Dissolve the sugar by agitation.

For action and dosage see Formula No. 11. Always shake the bottle well before taking.

Formula No. 15

Horehound Herb	2½ gr.	Menthol	½ ₁₂ gr.
Wild Cherry Bark	2½ gr.	Eucalyptol	½ ₂₄ min.
Eucalyptus Leaves	1 gr.	Fluid Tolu (for Syrup)	1 dr.
Ipecac	1 gr.	Honey	30 gr.
Sanguinaria	4 gr.	Alcohol, U.S.P.	24 min.
Squills	4 gr.	Oil of Peach	2 min.
Sodium Benzoate	1 gr.	Certified Red Food Color	to suit
Ammonium Chloride	4 gr.	Sugar	5 dr.
Decolorized Cascarine	8 gr.	Water, enough to make	1 oz.

Mix the alcohol with ½ ounce of water and percolate the first 6 drugs inclusive, which should be in No. 20 powder form, so as to get ½ ounce of percolate. Dissolve the sodium benzoate, ammonium chloride and cascantine in the percolate and add the fluid tolu. Add to this 15 grains of powdered animal charcoal. Shake well frequently during 1 week so as to decolorize; then filter. Add the other ingredients to the filtrate and dissolve the sugar by cold agitation or by cold percolation if made in large quantities. Finally make up to 1 ounce with water.

This expectorant compound is recommended for the relief of coughs due to common colds, hoarseness and huskiness of the voice caused by

cold, dampness, or exposure; also for the relief of minor bronchial irritations. It promotes expectoration and soothes the irritated mucous membranes of the throat.

Directions: Adults, 1 teaspoonful every 2 or 3 hours, or $\frac{1}{2}$ teaspoonful at more frequent intervals if conditions require; children of 6 years may take $\frac{1}{2}$ teaspoonful every 2 or 3 hours; children of 14 years and older may take adult dose; other ages, in proportion.

Shake the bottle well before taking.

Formula No. 16

Ground Thyme Herb	1½ lb.	Ground Comfrey	2 oz.
Ground Horehound		Ground Elecampane	1 oz.
Herb	10 oz.	Ammonium Chloride	3 oz.
Ground Grindelia	1 oz.	Menthol	20 gr.
Ground Yerba Santa	1 oz.	Eucalyptol	20 min.
Ground Wild Cherry		Gaduol (Merck)	4 dr.
Bark	3 oz.	Cascarine	1½ oz.
Ground Bloodroot	2 oz.	Oil of White Thyme	$\frac{1}{4}$ oz.
Ground Lobelia	1 oz.	Glycerin	6 oz.
Ground Squills	3½ oz.	Honey	$\frac{1}{2}$ pt.
Ground Pleurisy Root	1 oz.	Chloroform	256 min.
Ground Life Everlasting	1 oz.	Alcohol	6 oz.
Ground Pipsisewa	2 oz.	Granulated Sugar	5 lb.
Ground Mullein	2 oz.	Water	to make 1 gal.

Mix the ground drugs and pour over them 1 gallon of boiling water. Cover closely, place the container over a low fire, and keep just below the boiling point for an hour. Press out and strain. Dissolve the ammonium chloride, honey and glycerin in this infusion; then add the sugar and dissolve by gentle heat.

Add the oil of white thyme, menthol, eucalyptol, chloroform, gaduol and cascarine to the alcohol. Mix until entirely dissolved and add this mixture to the syrup made previously, after it has become practically cold, so as to avoid loss by evaporation.

This preparation is suitable for the relief of coughs due to common colds, hoarseness and huskiness of the voice caused by cold, dampness or exposure, also for the relief of minor bronchial irritations. It promotes expectoration and soothes the irritated mucous membranes of the throat.

Directions: Adults, 1 teaspoonful every 2 or 3 hours; children, 6 years, $\frac{1}{3}$ to $\frac{1}{2}$ teaspoonful every 2 or 3 hours; 14 years and over may take adult dose; other ages, in proportion.

Shake the bottle well before taking.

TONIC EXPECTORANT COMPOUND

Formula No. 1

Gaduol (Merck)	2	dr.	Ground Ipecac	2	dr.
Ground Sanguinaria	1	oz.	Fluid Tolu (for Syrup)	2	oz.
Ground Eucalyptus	1	oz.	Sodium Hypophosphite	2	oz.
Ground Horehound	1	oz.	Sodium Benzoate	2	dr.
Ground Wild Cherry			Oil of Apricot	1	dr.
Bark	4	oz.	Alcohol, U.S.P.	6 $\frac{4}{10}$	oz.
Ground Mullein	1	oz.	Water	to make	$\frac{1}{2}$ gal.
Ground Lobelia	1	oz.			

Mix all the ingredients except the ground drugs. Add powdered rotten stone and filter. Use the filtrate to percolate the drugs, adding enough water through the percolator to obtain 4 pints of percolate. To the percolate add:

Granulated Sugar	5 lb.	Water	to make 1 gal.
Oil of Peppermint	1 dr.		

Make a syrup by cold agitation. Finally color well with caramel.

If it is desired to make this expectorant distinctly different, 256 minims of Beechwood Creosote (U.S.P.) should be added in place of the oil of peppermint.

This expectorant is recommended for the treatment of coughs, colds, croup, laryngeal and bronchial inflammation, rawness and soreness of throat and chest due to common colds.

Dosage: Adults, 1 or 2 teaspoonfuls every 2 hours; children over 5 years, $\frac{1}{2}$ to 1 teaspoonful.

Shake the bottle well before taking or giving.

Formula No. 2

Ground Horehound	1	oz.	Sodium Benzoate	2	dr.
Ground Sanguinaria	1	oz.	Ammonium Chloride	2	oz.
Ground Lobelia	1	oz.	Menthol	20	gr.
Ground Ipecac	2	dr.	Cascarine	2	oz.
Ground Eucalyptus	1	oz.	Honey	8	oz.
Ground Mullein	1	oz.	Glycerin	6	oz.
Ground Wild Cherry			Beechwood Creosote	256	min.
Bark	4	oz.	Alcohol	6 $\frac{4}{10}$	oz.
Gaduol (Merck)	2	dr.	Granulated Sugar	5	lb.
Fluid Tolu (for Syrup)	2	oz.	Water	to make	$\frac{1}{2}$ gal.
Sodium Hypophosphite	2	oz.			

Mix all the ingredients except the ground drugs, glycerin, honey, and sugar. Add 3 ounces of powdered rotten stone and filter. Use the filtrate to percolate drugs, adding water enough through the percolator to obtain 4 pints of percolate. Dissolve the sugar by agitation in the percolate. Add the honey, glycerin, and remaining ingredients. Shake thoroughly.

If desired the creosote may be replaced by 1 dram of oil of apricot as flavoring.

This expectorant compound is recommended for the relief of coughs due to common colds, hoarseness and huskiness of the voice caused by cold, dampness, or exposure; also for the relief of minor bronchial irritations. It promotes expectoration and soothes the irritated mucous membranes of the throat.

Directions: Adults, 1 teaspoonful every 2 or 3 hours, or $\frac{1}{2}$ teaspoonful at more frequent intervals if conditions require; children of 6 years may take $\frac{1}{2}$ teaspoonful every 2 or 3 hours; children of 14 years and older may take adult dose; other ages, in proportion.

Shake the bottle well before taking.

EXPECTORANT COMPOUND

Formula No. 1

Whole Linseed	3 oz.	Menthol	15 gr.
Powdered Horehound		Eucalyptol	20 min.
Leaves	6 oz.	Ammonium Chloride	$1\frac{1}{4}$ oz.
Powdered Ginger	3 oz.	Chloroform	5 dr.
Powdered Capiscum	$\frac{1}{4}$ oz.	Oil of Anise	75 min.
Squills	2 oz.	Natural or True	
Fluid Licorice (for		Methyl Salicylate	30 min.
Syrup)	12 oz.	Honey	8 oz.
Bitterless Fluid		Glycerin	8 oz.
Cascara*	8 oz.	Alcohol	1 pt.
Gaduol (Merck)	$1\frac{1}{2}$ oz.	Granulated Sugar	5 lb.
Balsam Tolu	$\frac{1}{2}$ oz.	Water	to make 1 gal.
Oil of Tar	80 min.		

Over the first five ingredients pour 4 pints of boiling water and allow to stand in a moderately warm place for about 6 hours and then strain. In this dissolve the ammonium chloride and sugar. Then add the honey and glycerin.

Prepare a separate mixture of the alcohol, gaduol, menthol, oil of tar, balsam tolu, eucalyptol, oil of anise, methyl salicylate and chloroform.

To this mixture, add the fluid licorice and fluid cascara. Mix thoroughly. Slowly add this alcoholic mixture to the water mixture, finally adding hot water sufficient to make 1 gallon.

This expectorant compound is recommended for the relief of coughs due to common colds, hoarseness and huskiness of the voice caused by cold, dampness, or exposure, also for the relief of minor bronchial irritations. It promotes expectoration and soothes the irritated mucous membranes of the throat.

Directions: Adults, 1 teaspoonful every 2 or 3 hours, or $\frac{1}{2}$ teaspoonful at more frequent intervals if conditions require; children of 6 years may take $\frac{1}{2}$ teaspoonful every 2 or 3 hours; children of 14 years and older may take adult dose; other ages, in proportion.

Shake the bottle well before taking.

* See under preceding Formula No. 13.

Formula No. 2

Gaduol (Merck)	2 oz.	Menthol	30 gr.
Ground Mullein	2 oz.	Eucalyptol	1 dr.
Ground Uva Ursi	1 oz.	Honey	4 oz.
Ground Squills	4 oz.	Glycerin	8 oz.
Ground Senega	1 oz.	Chloroform	128 min.
Ground Bloodroot	2 oz.	Alcohol	12 oz.
Ground Horehound	8 oz.	Oil of Bitter Almonds	
Ground Wild Cherry		(free from Prussic	
Bark	8 oz.	Acid)	15 min.
Tartar Emetic	16 gr.	Oil of Cassia	10 min.
Sodium Benzoate	64 gr.	Sugar	$3\frac{1}{2}$ lb.
Bitterless Fluid Cascara*	4 oz.	Water	to make 1 gal.
Ammonium Chloride	512 gr.		

Put the mullein, uva ursi, squills, senega, bloodroot, horehound and wild cherry bark into an enamelled kettle with a closely fitting cover and pour in 1 gallon of boiling water. Cover closely and let stand for an hour, then put over the fire and very slowly heat for about 20 minutes, so that it comes just to a boil. Strain, and press out. Now slowly evaporate (without boiling) the liquid to about 3 pints.

Dissolve the tartar emetic, sodium benzoate and ammonium chloride in this. Then add the sugar and dissolve. Mix all the other ingredients with the alcohol, add the glycerin and when the syrup has cooled down

to about 100°F. add the alcoholic solution. Let stand for a few hours, strain, and color to suit with certified red food color.

This expectorant is recommended for the relief of coughs due to common colds, hoarseness and huskiness of the voice caused by cold, dampness or exposure, also for the relief of minor bronchial irritations. It promotes expectoration and soothes the irritated mucous membranes of the throat.

Dose: Adults, 1 teaspoonful every 2 or 3 hours or $\frac{1}{2}$ teaspoonful at more frequent intervals if conditions require; children of 14 years or older may take adult dose; children of 6 years may take $\frac{1}{3}$ to $\frac{1}{2}$ teaspoonful every 2 or 3 hours; other ages, in proportion.

Shake the bottle well before taking.

* See preceding Formula No. 13.

Formula No. 3

Gaduol (Merck)	$\frac{1}{2}$ oz.	Fluid Extract of	
Guaiacol	1 oz.	Eucalyptus	1 oz.
Creosote (U.S.P.)	$\frac{1}{2}$ oz.	Glycerin	1 pt.
Iron Peptonate	$\frac{1}{2}$ oz.	Oil of Orange	3 dr.
Calcium Glycero-phosphate	$\frac{1}{2}$ oz.	Oil of Neroli Bigarade	1 dr.
Sodium Glycero-phosphate	$\frac{1}{2}$ oz.	Sherry Wine (18% Alcohol)	1 pt.
Beef Extract	$\frac{1}{2}$ oz.	Syrupy Malt Extract	1 pt.
Fluid Extract of Wild Cherry	$\frac{1}{2}$ oz.	Alcohol	1.8 pt.
		Water	to make 1 gal.
	8 oz.	Caramel	sufficient to color

Mix the gaduol, guaiacol, creosote and the flavoring oils with the alcohol; then add the sherry wine, glycerin, and fluid extracts. Dissolve the remaining ingredients in a part of the water; then add to the other mixture. Add powdered talc and filter clear. To the clear filtrate, add the malt and caramel to color as desired; then add water to make up to 1 gallon.

This is recommended as an effective tonic and adjunct in the treatment of pulmonary and bronchial affections and deep seated and obstinate coughs due to colds; also as a stimulant to the appetite. etc. It may be used by both adults and children.

Dose: One tablespoonful four to six times a day; may start with a smaller dose if preferred; children, in proportion to age.

BILE SALTS COMPOUND TABLETS

	Base		Base times 1000 in grams	Base times 1000 in ounces
Sodium Glycocholate	$\frac{2}{3}$	gr.	43.12	1.5200
Sodium Taurocholate	$\frac{1}{3}$	gr.	21.56	0.7600
Papain	2	gr.	129.40	4.5700
Cascara Sagrada Extract	$\frac{1}{2}$	gr.	32.39	1.1430
Phenolphthalein	1	gr.	64.70	2.2800
Oleoresin Ginger	$\frac{1}{40}$	gr.	3.04	0.1750
Thiamine Chloride	$\frac{1}{166}$	gr.	0.38	0.0137
Methyl Cellulose*	$\frac{1}{10}$	gr.	6.47	0.2280
Base Massing Mixture	$\frac{1}{10}$	gr.	6.47	0.2280

Grind the sodium glycocholate, sodium taurocholate, phenolphthalein and thiamine chloride (crystalline vitamin B₁) together. Add the methyl cellulose, follow with the cascara sagrada, papain and ginger, work in the base massing mixture, and press into tablets. A chocolate coating is recommended.

If the tablets are too small increase the quantity of methyl cellulose until the desired size is obtained. An excess of methyl cellulose will do no harm.

This tablet is recommended for use for relieving constipation when due to a lack of bile; also, in hepatic and intestinal irregularities. The bulk supplying agent, methyl cellulose, increases the action of the intestinal tract.

Dose: One or two tablets about 2 hours after breakfast and also at bedtime. Two tablets after each meal may be taken in severe cases, about 2 hours after the meal. Decrease as bowel action suggests. A liberal quantity of water should be drunk daily.

Each tablet will contain 125 units of vitamin B₁.

* Omit methyl cellulose if bile salt tablets without it are desired.

MILD REGULATOR COMPOUND TABLETS

Heavy Magnesium Oxide	4 oz.	Root	12 oz.
Sodium Bicarbonate	$\frac{1}{2}$ lb.	Powdered Cardamon Seed	6 oz.
Powdered Aniseed	6 oz.	Powdered Chinese	
Powdered Cinnamon	4 oz.	Rhubarb	12 oz.
Powdered Juniper Berries	$\frac{1}{2}$ lb.	Powdered Licorice Root	1 lb.
Powdered African		Powdered Gentian Root	10 oz.
Ginger Root	$\frac{1}{2}$ lb.	Powdered Culver's Root	6 oz.
Powdered Dandelion		Powdered Greek	

Valerian Root	½ lb.	Charcoal	1 lb.
Powdered California Bark	½ lb.	Heat-treated Ground Flaxseed*	5 lb.
Powdered Willow		Granulated Sugar	1 lb.

Blend intimately by passing through a sieve several times, mixing well after each sieving. Press into large tablets weighing about 35 grains.

These tablets are recommended for use in minor digestive, stomach, kidney and bladder troubles and constipation. They will improve digestion, purify the blood, improve bodily tone, and act as a mild general system regulator and tonic.

Dosage: For adults, one tablet morning and evening to be chewed up and taken with a glass of milk or water. Children may take it according to age.

* The method used in treating the flaxseed consists of putting the ground whole seed or the seed from which the oil has been extracted (powdered linseed-oil cake) into shallow pans and heating in an oven at a moderate temperature (350° F) for 20 minutes. Remove the pans from the oven, raise the temperature to 400° F; return the pans containing the flaxseed and heat for 5 minutes. Overheating should be avoided as it tends to develop a highly disagreeable taste and odor in the oil contained in the flaxseed. Powdered linseed-oil cake has less tendency to develop bad taste and odor.

PEPSIN AND PAPAIN COMPOUND TABLETS

Formula No. 1

	Base Tablet	Base times 1000 given in grams	Base times 1000 given in ounces
Pepsin	½ gr.	32.399	1.1450
Papain	½ gr.	32.399	1.1450
Diastase	¼ gr.	16.199	0.5730
Precipitated Calcium Carbonate	1-5 gr.	64.799	2.2900
Powdered Cascara Sagrada	1 gr.	64.799	2.2900
Ginger Powder	¼ gr.	16.199	0.5730
Powdered Cardamon Seed	¼ gr.	16.199	0.5730
Oil of Canada			
Snake Root	½ ₂₀ min.	6.080 cc.	6.0800 cc.

Gentian Powder	1	gr.	64.799	2.2900
Aromatic Powder	$\frac{1}{4}$	gr.	16.199	0.5730
Thiamine Chloride	1	mg.	1.000	0.0353
Methyl Cellulose	$\frac{1}{10}$	gr.	6.480	0.0226

Place the dry powders in a mortar or ball mill and mix well. Then add the methyl cellulose and mix well again. Mix the snake root oil with the calcium carbonate and add, while stirring, to the first mixture. Press into tablets.

If the tablets are too small, increase the quantity of methyl cellulose until you get the desired size. An excess of methyl cellulose will do no harm.

This tablet will relieve indigestion due to hyperacidity, flatulence (gas), sour stomach, heartburn and other conditions caused by over-eating, improper food, etc. The methyl cellulose will increase the action of the intestinal tract.

Directions: For adults, for acid dyspepsia, overfullness after eating, or similar distresses of the stomach, take one or two tablets $\frac{1}{2}$ hour after meals or at any time when relief is desired; for sour stomach, belching caused by acid, or heartburn, take one tablet before and one tablet $\frac{1}{2}$ hour after eating. The tablet should be crushed with the teeth and followed with a glass of water if possible. Children may take it in proportion to age.

Formula No. 2

Each tablet contains:

Papain	$\frac{1}{2}$ gr.	Calcium	
Pepsin	$\frac{1}{2}$ gr.	Glycerophosphate	1 gr.
Diastase	$\frac{1}{4}$ gr.	Thiamin Chloride	
Precipitated		(Crystalline Vita-	
Calcium Carbonate	4 gr.	min B ₁)	$\frac{1}{166}$ gr.
Powdered		Oil of Canada	
Cascara Sagrada	1 gr.	Snake Root	$\frac{1}{20}$ min.
Powdered Ginger	$\frac{1}{4}$ gr.	Base Powdered	
Powdered		enough to make	22 gr.
Cardamon Seed	$\frac{1}{4}$ gr.	(Sugar	8 parts)
Powdered Gentian	1 gr.	(Compound	
Aromatic Powder	$\frac{1}{4}$ gr.	Licorice Powder	4 parts)

Mix thoroughly by sieving.

The quantity given makes one tablet, therefore, multiply the number of tablets to be made by this unit quantity.

Add sufficient water to make the powder into a mass, which after proper mixing is passed through a lozenge machine. For small batches the mass can be rolled out on a slab and cut into lozenges with an ordinary lozenge cutter.

Each tablet will contain 125 units of vitamin B₁.

Uses and directions are the same as for Formula No. 1.

TABLETS FOR ACID DYSPEPSIA AND INDIGESTION

Each tablet contains:

Bismuth Subnitrate	3 gr.	Papain	1 gr.
Heavy Magnesium Oxide	10 gr.	Sodium Glycero-phosphate	1/2 gr.
Powdered Ginger	2 gr.	Calcium Glycero-phosphate	1/2 gr.
Powdered Gentian	1 gr.	Oil of Peppermint	1/4 min.
Powdered Willow Charcoal	3 gr.	Sugar to make	22 gr.

Mix thoroughly and compress.

This preparation is recommended in the treatment of acid dyspepsia frequently called indigestion, also dyspepsia, heartburn, and minor digestive disturbances.

Directions: One or two tablets after meals or as conditions may require. Chew the tablet and follow with a drink of water.

GASTRIC ANTACID ALKALIZER POWDER

Bismuth Subcarbonate	96 gr.	Potassium Bicarbonate	24 gr.
Calcium Carbonate	720 gr.	Diastase	48 gr.
Magnesium Carbonate	288 gr.	Papain	96 gr.
Colloidal Aluminum Silicate	576 gr.	Heavy Magnesium Oxide to make	4 oz.
Sodium Bicarbonate	144 gr.	Oil of Peppermint	40 drops

Mix thoroughly by sieving.

This powder is effective for correcting hyperacidity and relieving gastric irritability.

Dose: One heaping teaspoonful in half glass of water, after meals or when distressed; as an alkalizer, usually 1 teaspoonful every 3 or 4 hours.

LAXATIVE EMULSION

Powdered Agar (Best White Grade)	5.12 oz.	Thiamin Chloride (Crystalline Vitamin B ₁)	3 gr.
White Mineral Oil (Medicinal)	4 pt.	Glycerin	19.2 oz.
Phenolphthalein	1.6 oz.	Water	to make 1 gal.

Mix the first three ingredients in the order given in an electric mixer or colloid mill; rapidly add the last two substances with constant mixing. Dissolve the thiamin chloride in a little water and add.

This laxative will contain 500 units of Vitamin B₁ per fluid ounce. It will act as a lubricant and promote bowel activity.

Dose: Adults, 1 tablespoonful, or more in extreme cases, morning and night. Diminish to occasional dose as required; children, 1 teaspoonful once daily, or occasionally as needed.

Shake the bottle well before taking.

Laxative Caution Label: No laxative should be taken in case of abdominal pains, vomiting, or other symptoms of appendicitis. Too frequent or continued use of any laxative may result in dependence on laxatives.

CHOCOLATE-FLAVORED LAXATIVE

Powdered Agar (Best Grade)	5 $\frac{1}{8}$ oz.	Water	1 gal.
White Mineral Oil (Medicinal Grade)	4 pt.	Unsweetened Chocolate Liquor	5 fl. oz.
Phenolphthalein	1 $\frac{1}{2}$ oz.	Aromatic Fluid Extract of Cascara	4 fl. oz.
Glycerin	20 fl. oz.		

Melt the chocolate liquor in a double boiler with about 2 pints of water and add the glycerin.

Put the agar powder into a colloid mill, add the mineral oil, and run till well mixed. Add the phenolphthalein with the mixer running. Run in the chocolate liquor mixture and continue running until perfectly smooth. lastly adding the remainder of the water slowly with the mixer running.

When all is combined, let stand for 12 hours, then run the mixer again for a few minutes before bottling.

This may be flavored with a little 1:128 solution of vanillin in alcohol, about 1 ounce to the gallon.

The 1:128 vanillin solution is made by dissolving 1 ounce of vanillin in 2 pints of alcohol and adding water to make 1 gallon.

The product will contain 15 minims of fluid extract of cascara aromatic to the fluid ounce.

Dose: Adults, 1 tablespoonful once or twice a day, morning or night. Diminish to occasional dose as required; children, 1 teaspoonful once daily, or occasionally as required.

Always shake the bottle well before using.

The success of any emulsion depends on the thoroughness of mixing. Since this product contains a high proportion of mineral oil, it must be mixed very carefully. Replacing about 4 ounces of the mineral oil with the same quantity of olive or purified cottonseed oil will facilitate emulsification.

HYDROPHILIC MUCILOID POWDER

	<i>Small Batch</i>	<i>Large Batch</i>
Hydrophilic Muciloid of		
Plantago Oraba	5 oz.	5 lb.
Dextrose	5 oz.	5 lb.
Methyl Cellulose	5.6 gr.	0.2 lb.

Use U.S.P. grade chemicals and mix well.

Directions: For adults, to be taken 5 to 10 grams per dose, with liquids, without mastication one to three times daily as recommended by physician. The dose to be taken should be added to a full glass of cold water, fruit juice, milk or other liquids. Stir briskly and drink at once. An additional glass of liquid following each dose is recommended to assure retaining a soft gelatinous consistency throughout the intestinal tract.

This powder is an intestinal lubricant and a nonirritating bulking agent which encourages normal elimination by promoting peristalsis.

LAXATIVE SYRUP COMPOUND

Aromatic Fluid Extract		Chopped Figs	2 oz.
of Cascara	1½ oz.	Powdered Pepsin	32 gr.
Fluid Extract of Oregon		Oil of Fennel	10 min.
Grape Root	3 dr.	Oil of Cinnamon	10 min.
Ground Senna Leaves		Oil of Cloves	5 min.
(No. 20 Powder)	6 dr.	Sugar	3 oz.
Stoned Prunes	2 oz.	Water	to make 1 pt.

Boil the senna, prunes, and figs with 10 ounces of water for 1 hour, adding water once in a while to make up for that boiled away. Then let

cool off some and strain through muslin; press, if necessary. Discard the residue.

In the clear liquid first dissolve the pepsin, then add the fluid extracts and finally the sugar with which the flavoring oils have been mixed. Add enough water to make 1 pint and shake until the sugar is dissolved.

Directions: Adults, from 1 or 2 teaspoonfuls to 1 or 2 tablespoonfuls. The dose may be repeated in about 6 hours if necessary. Children of 1 year may take $\frac{1}{2}$ to 1 teaspoonful; 1 to 5 years, 1 to 2 teaspoonfuls; 5 to 15 years, about 2 teaspoonfuls. Take before or after meals or at bedtime. The dose should be governed according to its action.

Shake the bottle before taking.

Note the "Food and Drug Law Requirements" pertaining to label "Laxative Caution" in the appendix.

CHILDREN'S LAXATIVE COMPOUND

Ground Senna Leaves	4 lb.	Sodium Benzoate	$\frac{1}{4}$ oz.
Cut Pumpkin Seed	6 oz.	Oil of Fennel	30 min.
Aniseed	4 oz.	Oil of Anise	30 min.
Ground Worm Seed	4 oz.	Oil of Wintergreen	
Catnep Herb	8 oz.	True	$\frac{1}{2}$ oz.
Ground Fennel Seed	4 oz.	Oil of Peppermint	15 drops
Ground Licorice Root	4 oz.	Granulated Sugar	2 lb.
Sodium Bicarbonate	3 oz.	Alcohol	5 fl. oz.
Rochelle Salts	$1\frac{1}{2}$ lb.	Hot water	sufficient
Glycerin	4 pt.		

Macerate the senna, licorice root, fennel, anise, wormseed, and pumpkin seed with 3 gallons of hot water for 3 hours. Do not cook or boil, but simply pour boiling water over the drugs, cover the vessel closely, and let stand in a moderately warm place, e.g., at the back of the stove, for the time required. Drain off the liquid and press out the dregs so as to get all the liquid from them. (Use a tincture press or twist in a strong cloth.) Then evaporate the liquid, by gentle heat, down to $1\frac{1}{4}$ gallons. Dissolve in this the soda, salts, and sugar, and add the glycerin. Dissolve the oils in alcohol and add to the other ingredients, lastly dissolving the benzoate of soda in the mixture.

This is a pleasant, effective laxative especially recommended for infants and children. It is efficient in overcoming temporary constipation, sour stomach, diarrhea, sleeplessness and feverishness due to this cause.

Dose: From 1 to 3 years, 1 to 2 teaspoonfuls; from 6 months to 1 year, $\frac{1}{2}$ to 1 teaspoonful; from 1 to 6 months, 15 to 35 drops.

LAXATIVE FRUIT SYRUP COMPOUND

Aromatic Fluid Extract		Thiamin Chloride	
Cascara Sagrada		(Crystalline Vita-	
(U.S.P.)	1¾ oz.	min B ₁)	¾ gr.
Fluid Extract of Oregon		Malt Extract,	
Grape Root	3 dr.	Thick, Syrup	1 oz.
Fluid Extract of Licorice		Natural or True	
(for Syrup)	½ oz.	Methyl Salicylate	10 drops
Senna Leaves		Safrol	10 drops
(No. 20 Powder)	1 oz.	Vanillin	15 gr.
Stoned Prunes	2 oz.	Granulated Sugar	3 oz.
Figs	2 oz.	Alcohol	1 oz.
Pepsin (U.S.P.)	64 gr.	Water	to make 1 pt.

Chop the figs and prunes to a fine hash, mix with the senna leaves, and steep slowly (without boiling) in 12 ounces of water, for 3 hours, adding water from time to time to replace that lost by evaporation. Then strain through a No. 40 sieve. Mix the flavors, fluid extracts, and alcohol and add to the mixture. Rub up the pepsin with a little water and add to the mixture. Dissolve the thiamin chloride in a little water and add. Dissolve the sugar in the resulting mixture. Add the malt extract and finally sufficient hot water to make up to 1 pint. Mix thoroughly by agitation.

This syrup will contain 500 units vitamin B₁ per fluid ounce. It is recommended when an evacuant is indicated, helping to relieve conditions due to constipation.

Dosage: Adults, 1 or 2 tablespoonfuls at bedtime. It may also be taken in teaspoonful doses before or after meals; children, 1 to 6 years, 1 or 2 teaspoonfuls; 6 to 15 years, ½ to 1 tablespoonful.

Shake the bottle well before taking or giving.

FIG-SYRUP COMPOUND LAXATIVE

Fine Chopped Figs	8 oz.	Rochelle Salts	4 oz.
Fine Chopped Dates	4 oz.	Sugar	6 lb.
Coarse Powder of		Oil of Anise	15 min.
Buckthorn Bark	8 oz.	Oil of Winter-	
Cut Senna Leaves	8 oz.	green True	10 min.
Powdered		Alcohol (U.S.P.)	25.6 oz.
Licorice Root	2 oz.	Thiamin Chloride	
Aromatic Fluid Extract		(Crystalline Vita-	
of Cascara	8 fl. oz.	min B ₁)	3 gr.
Sodium Bicarbonate	1 oz.	Water	to make 1 gal.

Put the figs and dates into 2 quarts of water and cook slowly for 30 minutes. Strain and press out, adding enough water through the strainer to make the strained liquid measure 2 quarts. Mix the buckthorn, senna and licorice root. Put this mixture into the 2 quarts of decoction from the figs and dates and simmer slowly for an hour, adding a little water from time to time to make up for that lost by evaporation. Again strain and press out, adding enough water through the strainer to make the product measure 2 quarts. In this, dissolve the sodium bicarbonate and rochelle salts. Then add the sugar and stir until dissolved, warming gently if necessary, to effect solution. Do not bring above 180°F. Again remove from the fire and when it has become cool, add the alcohol in which the oils have been dissolved and to which the cascara has been added. Finally add water to make 1 gallon. Dissolve the thiamin chloride in a little water and add last. Mix by thorough agitation.

This laxative syrup will contain 500 units vitamin B per fluid ounce and is recommended for use when an evacuant is indicated, helping to relieve conditions due to constipation.

Directions: Adults, 1 or 2 tablespoonfuls; children, 1 year, 1 teaspoonful; 1 to 6 years, 2 teaspoonfuls; 6 to 15 years, 1 tablespoonful; younger children in proportion to age. Take at bedtime or before or after meals.

The bottle should be shaken well before giving or taking.

Note *Food and Drug Law Requirements* pertaining to label *Laxative Caution*.

COMPOUND LAXATIVE SYRUP

Formula No. 1

Ground Cinnamon	0.51 oz.	Pepsin	2.91 oz.
Ground Cloves	0.73 oz.	Oil of Peppermint	63.00 min.
Ground Senna Leaves	8.00 oz.	Sugar	5.50 lb.
Bitterless Fluid Cascara	6.14 oz.	Alcohol (U.S.P.)	6.40 oz.
		Water	to make 1.00 gal.

Mix the alcohol with 4 pints of water. Prepare the first three drugs for percolation and percolate with the alcohol and water. Place the percolate in a gallon bottle, add the rest, and prepare a syrup by cold agitation.

This laxative compound is recommended for use when an evacuant is indicated, acting gently on the bowels as a laxative. It is acceptable to children and delicate persons.

Directions: Adults, as a laxative for constipation, take 1 to 2 table-

spoonfuls at bedtime or after meals. For children, give $\frac{1}{2}$ to 2 teaspoonfuls according to age and effect desired. Doses may be repeated in 6 to 8 hours if necessary.

The bottle should be shaken before taking.

Use *Laxative Caution* on label.

Formula No. 2

Ground Rhubarb	165 gr.	Alcohol	2	dr.
Ground Cinnamon	10 gr.	Bitterless Aromatic		
Ground Cloves	15 gr.	Fluid Cascara	2	dr.
Oil of Peppermint	3 drops	Sugar	$3\frac{1}{100}$	oz.
Soluble Pepsin		Water	to make	$5\frac{1}{2}$ oz.
(U.S.P.)	1 dr.			

Percolate the first three drugs with a mixture of 1 ounce of water and the alcohol. Dissolve the pepsin in a little water and add it to the percolate, add to this the fluid cascara and then the oil of peppermint and sugar, previously mixed and dissolve by cold agitation or when made in larger quantities by cold percolation; finally add enough water to make up to $5\frac{1}{2}$ ounces. Color with caramel, if desired.

The uses and directions given in Formula No. 1 are applicable to this syrup also.

The bottle should be shaken before taking.

COMPOUND LAXATIVE TABLETS

Each tablet contains:

Cassia Fistula Pulp	2	gr.	Phenolphthalein	1	gr.
Tamarind Pulp	3	gr.	Thiamin Chloride		
Fig Pulp	3	gr.	(Crystalline Vita-		
Oleoresin Ginger	$\frac{1}{20}$	gr.	min B ₁)	$\frac{1}{166}$	gr.
Powdered Nutmeg	$\frac{1}{10}$	gr.	4X Sugar	14	gr.
Sodium Chloride	$\frac{1}{10}$	gr.			

Mix well, granulate by rubbing through a coarse sieve, spread on flat pans to dry well, weigh, and bring up to weight by adding powdered sugar. Spray a little with mineral oil and compress into tablets.

This tablet will relieve constipation and its attending ills.

Dose: Adults, one tablet just before retiring. In obstinate cases, the dose may be increased. Decrease as bowel action becomes normal; children, 6 years, $\frac{1}{2}$ tablet; older children, according to age.

Each tablet will contain 125 units of vitamin B₁.

In cases of appendicitis or severe abdominal pains, no laxative of any kind should be given.

COMPOUND LAXATIVE CARAMELS

Each contains:

	gr.		gr.
Cassia Fistula Pulp	10	Phenolphthalein	1
Tamarind Pulp	12	Glucose	36½
Fig Pulp	12	Granulated Sugar	50
Oleoresin Ginger	½	Cocoanut Oil	1
Powdered Nutmeg	⅓	Water	sufficient
Sodium Chloride			
(Salt)	⅓		

Rub up the oleoresin of ginger, nutmeg, sodium chloride, and phenolphthalein with the sugar in a mortar. Then pass through a sieve two or three times, mixing well after each sieving. Add the glucose and mix well; then grind the mixture with the fruit pulp, adding just enough water to combine with the other ingredients. The proper consistency is about that of molasses. Cook the whole in a copper kettle to 240°F., with constant stirring, then pour out into greased pans, let cool, cut, and wrap. The cocoanut oil is added to prevent the caramels from sticking to the wrapper.

The uses and dosage given under Compound Laxative Tablets are applicable to this formula also.

LAXATIVE WAFERS

Phenolphthalein	200 gr.	Artificial Raspberry Oil	2 fl. dr.
Sugar	3 oz. 147 gr.	Starch	70 gr.
Agar Agar	53 gr.	Certified Red Food Color	10 gr.
Citric Acid	50 gr.	Water	enough

Soak the agar in water for several hours. The exact quantity is not of much importance for any excess will be poured off before using the softened agar. Mix the sugar, powdered citric acid, and phenolphthalein. Stir the starch to a smooth cream with 1 ounce of cold water and add this to the sugar-acid mixture. Boil at 230°F. Then add the softened agar from which any excess of water has been poured off. Mix well, remove from the fire, add the raspberry oil and color, pour into starch molds, let cool, remove from the molds, and cut into wafers. Roll in granulated sugar or treat as in finishing gum drops.

The quantity given in the formula should be cut into one hundred wafers.

The dose for adults of this laxative wafer is one or two wafers as conditions may require, decreasing dose as bowel action suggests; children over 6 years, a half to one, under 6 years $\frac{1}{4}$ to $\frac{1}{2}$ wafer.

LAXATIVE-CATHARTIC

Sodium Bicarbonate	104 gr.	Sodium Phosphate	218 gr.
Tartaric Acid	54 gr.	Sodium Sulfate Crystals	218 gr.
Citric Acid	35 gr.	Lithium Citrate	40 gr.

When making extemporaneously, the last three ingredients are dried on a glass slab at below 212°F . until they have lost approximately one half of their original weight. Then add the other ingredients finely powdered and continue heating at about 180° – 190°F . for about 1 hour. The mixture will become somewhat moist and lumpy during this heating process, and when cool, should be reduced to powder.

When working on a commercial scale, e.g., with lots of 100 pounds, all ingredients are reduced to powder and thoroughly combined in a sifting and mixing machine, then placed in shallow enamelled or glass pans and heated at about 200°F . until the water of crystallization is driven off. The mixture is then passed through screens to reduce to the proper size of granulation, and finally completely dried at about 160°F . The older method of moistening with alcohol is now obsolete and all effervescent salts are now being made by the dry heating method. By using a mixture of citric and tartaric acids, the citric acid will furnish moisture enough to thoroughly mass the mixture during the heating.

This effervescent saline is a laxative and cathartic as well as an aperient.

Directions: Adults, as a laxative and cathartic 2 to 4 teaspoonfuls in a large glass of water, preferably before breakfast. Add the salt to the water and stir until dissolved. As a gentle laxative, 1 or 2 teaspoonfuls dissolved in a glass of water, $\frac{1}{2}$ to 1 hour before meals, or before retiring; as an aperient, $\frac{1}{2}$ teaspoonful dissolved in a glass of water sipped at frequent intervals; children, 4 to 10, may be given a teaspoonful dissolved in a glass of water as a gentle laxative.

DEMULCENT, ANTACID AND ADSORBANT

Prescription for one liter (200 doses):

To 850 cubic centimeters of distilled water, add 10 grams of sodium

carboxymethyl cellulose* (low viscosity, pharmaceutical grade). Let stand overnight, stir with a stainless steel stirrer, and add:

Aluminum Hydroxide Gel (Paste Form)	100 gr.
Bismuth Subsalicylate	120 gr.
Salol	60 gr.
Sodium Lactate (50% Solution)	40 cc.
Pineapple Flavor	to suit
Naphthol Yellow S	to suit

Add distilled water to make up to 1,000 cc.

It relieves sour and acid stomach, gas belching, gastric hyperacidity, flatulence, nausea; soothes upset stomach, retarding fermentation and simple diarrhea.

Dose: Adults, 1 teaspoonful every $\frac{1}{2}$ hour, until relieved. Children, $\frac{1}{2}$ teaspoonful. Shake bottle before using.

Caution: A more serious condition may be indicated by continuous distress, in which case a physician should be consulted.

* If any difficulty is experienced in obtaining the proper grade of sodium carboxymethyl cellulose, suggest writing to Hercules Powder Co.; Wilmington, Del.

ASTRINGENT-CARMINATIVE COMPOUND

Salol	2 oz.	Oil of Cloves	90 min.
Camphor Gum	2 oz.	Alcohol	16 fl. oz.
Menthol	55 gr.	Bismuth Sub-	
Eucalyptol	60 min.	nitrate	16 oz.
Pancreatin	2 lb.	Nitric Acid	18 fl. oz.
Chloroform	9 fl. oz.	Water	4 $\frac{1}{2}$ fl. oz.
Fluid Extract of		Sodium	
Red Gum	96 fl. oz.	Carbonate	1 lb. 11 oz.
Glycerin	2 $\frac{3}{8}$ gal.	Water to make	22 gal.
Oil of Nutmeg	60 min.		

Dissolve the bismuth subnitrate and nitric acid in the 4 $\frac{1}{2}$ ounces of water, then add the sodium carbonate and water enough to make 22 gallons. Wash for 3 days, with frequent changes of water, decanting carefully. To the precipitate, add the remaining ingredients by dissolving the salol in the chloroform and the camphor, menthol, and oil in the alcohol and mixing these two solutions. Add the fluid extract of red gum to the mixture. Rub the pancreatin with some of the glycerin to a smooth mixture, gradually adding the remainder of the glycerin and mixing thoroughly.

Blend the glycerin-pancreatin mixture with the precipitate and stir into this the alcohol-chloroform-fluid extract mixture.

This mildly astringent and carminative compound is used in the treatment of diarrhea, inflammation of the gastro-intestinal tract, and gastro-intestinal fermentation.

Directions: Adults, 1 or 2 teaspoonfuls every $\frac{1}{2}$ hour until six or eight doses have been taken; then every 3 or 4 hours until relieved. Children may take $\frac{1}{3}$ or $\frac{1}{2}$ teaspoonful, according to age.

Always shake the bottle before taking.

KAOLIN AND PECTIN MIXTURE

Kaolin	1440 gr.	Soluble Saccharin	6 gr.
Pectin	72 gr.	Glycerin	150 minims
Powdered Tragacanth	36 gr.	Oil of Peppermint	10 drops
Sodium Benzoate	8 gr.	Water	to make 1 pt.

Triturate the tragacanth with part of the water. Do likewise with the kaolin and pectin. Mix together. Dissolve the sodium benzoate and saccharin in water and add the glycerin and oil. Mix all together, adding water to make the required amount.

This preparation is used as an internal adsorbent in diarrhea, dysentery, and colitis.

Dose: Adults, 2 or more tablespoonfuls after each bowel movement or as indicated; children, 1 or more teaspoons, or as indicated.

CHOCOLATE-FLAVORED WORM SYRUP

Phenolphthalein	1 dr.	Chocolate Syrup	
Santonin	56 gr.	to make	16 fl. oz.
Gum Tragacanth	2 dr.	Solution of	
Glycerin	2 fl. oz.	Vanillin (1:128)	1 fl. dr.
Water	4 fl. oz.		

Soak the tragacanth in the water for 12 hours and mix thoroughly. Put this into a homogenizer and start the agitator. Add the glycerin and mix thoroughly. Run in the chocolate syrup with the agitator running and mix until perfectly smooth. Then add the vanillin solution.

This is an effective and palatable remedy for round, pin, thread, and seat worms. It is easy to take and does not require any laxative to be taken with it.

Dose: Adults, 1 teaspoonful; children, $\frac{1}{4}$ or $\frac{1}{2}$ teaspoonful from 2 years up. Take a single dose at bedtime. If the bowels do not move

freely in the morning, follow with magnesium citrate or milk of magnesia. Always shake the bottle well before using. *Never follow by castor oil.*

LAXATIVE WORM SYRUP

Santonin	48 gr.	Oil of Neroli	2 min.
Sodium Bi-		Oil of Coriander	8 min.
carbonate	144 gr.	Sugar	12 oz.
Fluid Extract		Alcohol	1/2 fl. oz.
of Pink Root		Magnesium	
and Senna	2 fl. oz. 320 min.	Carbonate	about 3 dr.
Aromatic Fluid		Water	to make 16 fl. oz.
Extract of			
Rhubarb	1 fl. oz. 160 min.		

Dissolve the oils in the alcohol, add the magnesium carbonate, aromatic fluid extract of rhubarb, and a small quantity of water. Filter and to the clear filtrate add the fluid extract of pink root and senna and the santonin previously dissolved in sufficient water with the aid of the sodium bicarbonate. Then dissolve the sugar in the liquid and strain.

This is a remedy for round, pin, thread, and seat worms.

Dose: Adults, 1 teaspoonful; children, 1/4 or 1/2 teaspoonful from 2 years up; other ages, in proportion. Take a single dose at bedtime.

MODIFIED CATNEP AND FENNEL COMPOUND

Fluid Extract Catnep	1 oz.	Glycerite of Pepsin	2 dr.
Fluid Extract Fennel	272 min.	Sodium Benzoate	16 gr.
Oil of Anise	2 drops	Sodium Bicarbonate	2 dr.
Oil of Fennel	3 drops	Water	to make 8 oz.
Oil of Spearmint	2 drops		

Add some powdered rotten stone and filter clear. To the clear filtrate add:

Granulated Sugar	12 oz.	Water	to make 1 pt.
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Dissolve by cold agitation.

This is a pleasant and handy remedy for irritable and nervous children and may be given freely with safety as it has no dangerous, disagreeable, or injurious effects.

It is excellent in cases of poor digestion, colic, gas in stomach, nausea, sour stomach, vomiting and for fretful children during teething.

Directions: For infants 1 to 4 weeks old, give 5 to 8 drops in a tea-

spoonful of warm water every 15 to 30 minutes until quieted or relieved. For older children, increase the dose 1 to 2 drops for each week over 4 weeks of age.

Adults may derive relief from indigestion, acid stomach, etc. by increasing the dose to 2 teaspoonfuls every $\frac{1}{2}$ hour till relieved.

HAY-FEVER AND ASTHMA REMEDY

Potassium Iodide	4 dr.	Alcohol	4 fl. oz.
Ammonium Bromide	10 dr.	Aromatic Syrup of	
Tincture of Belladonna	4 fl. dr.	Yerba Santa	8 fl. oz.
Tincture of Lobelia	6 fl. dr.	Water	to make 16 fl. oz.
Fluid Extract of Grindelia	8 fl. dr.		

Dissolve the first two ingredients in 3 fluid ounces of water. Mix the tinctures and fluid extracts with the alcohol. Add the syrup of yerba santa to the water solution and mix well; then add the alcohol mixture.

Recommended against spasms of asthma and hay fever and associated bronchial coughs.

Directions: Adults, 1 teaspoonful after meals in one quarter glass of water.

Caution: Since this preparation contains potassium iodide, it should not be used by those suffering from active or latent pulmonary tuberculosis.

CHILL AND FEVER REMEDY

Quinine Sulfate	2 dr.	Fluid Extract of Senna	2 oz.
Cinchonine Sulfate	2 dr.	Tincture of Ginger	$\frac{1}{2}$ oz.
Phenacetine	2 dr.	Tincture of Capsicum	$\frac{1}{4}$ oz.
Sodium Bicarbonate	2 dr.	Oil of Cinnamon	1 dr.
Saccharine	15 gr.	Alcohol	3 oz.
Fluid Extract of Mandrake	$\frac{1}{2}$ oz.	Water	to make 1 pt.
Fluid Extract of Licorice	4 oz.		

Dissolve the quinine, cinchonine, and oil in the alcohol, gently heating on a water bath to facilitate solution. Then dissolve the phenacetine in this solution. Dissolve the saccharine and sodium bicarbonate in the water. Mix the solution of the quinine and phenacetine with the fluid extracts, add the tinctures, and finally add the solution of sodium bicarbonate and saccharine to the mixture.

This remedy is effective for the treatment of chills and fevers due to common colds. It will also be helpful in the treatment of malarial fevers.

Directions: In ordinary cases 1 teaspoonful three times a day; in prevention, 2 teaspoonfuls in the morning; in malaria, begin a day before the chill is expected, taking a laxative to open the bowels. Then 10 hours before chill time, take 2 teaspoonfuls every 2 hours until five doses are taken. When the fever following the chill subsides, give two teaspoonfuls every 4 hours until within 10 hours of chill time; then give 2 teaspoonfuls every two hours and continue until the chills are broken. By following the treatment outlined with a dose three or four times a day for 2 weeks, the system should be rid of malaria. The dose for children is in proportion to age. Always shake the bottle before taking remedy.

This preparation contains $7\frac{1}{2}$ grains of phenacetine to each ounce.

ANTISEPTIC HEALING OINTMENT

Formula No. 1

Aluminum Acetate	192 gr.	White or Yellow	
Zinc Oxide	160 gr.	Ceresin Wax	1 oz.
Ichthyol	20 gr.	Lanolin	1 oz.
Liquid Phenol	60 min.	Oil Compound*	2 fl. oz.
Boric Acid Powder	350 gr.	Petrolatum	10 oz.
Stearic Acid	1 oz.		

Melt the stearic acid, ceresin wax, lanolin and petrolatum, using no more heat than is required. Rub up the ichthyol with about 1 ounce of the melted mixture. Mix the powders and sift in slowly, stirring well. Transfer the whole to a mortar or ointment mill and grind smooth. Add the oil compound and mix thoroughly.

This antiseptic, healing ointment is recommended for wounds, cuts, burns, scalds, bruises, sores, piles, etc. It relieves pain and stimulates healing.

It is to be applied freely to the affected area, bandage may be applied as protection.

*OIL COMPOUND

(Oil of Sassafras	2 oz.)
(Pumilius Oil of Pine	2 oz.)
(Oil of Origanum	1 oz.)
(Oil of Erigeron	1 oz.)
(Camphor	1 oz.)
(Menthol	$\frac{1}{8}$ oz.)
(Turpentine	to make 1 pt.)

Dissolve the camphor and menthol in the turpentine, add the oils, and mix thoroughly.

Formula No. 2

Zinc Oxide	1 lb.	Powdered Boric Acid	4 oz.
Starch	1½ lb.	Oil of Eucalyptus	2 oz.
Aluminum Acetate	4 oz.	Methyl Salicylate	1 oz.
Calomel	4 oz.	Oil of Cajeput	1½ oz.
Liquefied Phenol	2 oz.	Amber Petrolatum	
Camphor Gum	1½ oz.	to make	5 lb.

Melt the petrolatum and dissolve the camphor in it by means of gentle heat. Mix the powders together and blend the mixture with the petrolatum. Add the phenol and oils during the mixing process. An ointment mill is the best for making a smooth ointment.

This antiseptic, healing ointment is recommended for wounds, cuts, burns, scalds, bruises, sores, piles, etc. It relieves pain and stimulates healing.

It is to be applied freely to the affected area, bandage may be applied as protection.

Formula No. 3

Calomel	¾ oz.	Camphor Gum	¼ oz.
Zinc Oxide	1 oz.	Paraffin Wax	1¼ oz.
Powdered Acetanilide	½ oz.	Safrol	30 drops
Boric Acid Powder	½ oz.	White Petrolatum	6½ oz.
Liquid Phenol (U.S.P.)	1 fl. dr.		

Melt the paraffin wax in the petrolatum, remove from the fire and, after it has cooled a little but not sufficiently to turn white, stir in the phenol, camphor and safrol. Slowly sift in the mixed powders, with constant stirring, until it forms a uniform ointment. If made in large quantities, it should be ground through an ointment mill to give a smooth ointment.

This excellent ointment is antiseptic, soothing and healing as well as analgesic, and astringent. It is a valuable dressing for wounds, cuts, burns, scalds, boils, sores, ulcerations, piles, bruises, etc. It relieves pain quickly and heals thoroughly on the surface as well as below, preventing infection and reducing inflammation.

Directions: Apply freely to the parts affected either with the hand or on soft cloth. Apply a bandage for protection.

Formula No. 4

Aluminum Acetate	2 dr.	Solid Extract of Arnica	2 dr.
Solid Extract of Witch Hazel	2 dr.	Liquid Phenol	150 gr.
		Camphor	150 gr.

Zinc Oxide	2 oz.	Paraffin	1 oz.
Powdered Starch	2 oz.	Amber Petrolatum	
Oil of Eucalyptus	60 min.		to make 1 lb.
Oil of Pine	60 min.		

Mix the solid extracts with the aluminum acetate, starch, and zinc oxide. Melt 11 ounces of the petrolatum with the paraffin, remove from the fire, and dissolve the camphor in it; then add the phenol and mix well. Combine this thoroughly with the mixture of solid extracts, starch, and aluminum acetate, grinding all to a perfectly smooth ointment. Add oils when cooling.

This excellent ointment is antiseptic, soothing and healing as well as analgesic, and astringent. It is a valuable dressing for wounds, cuts, burns, scalds, boils, sores, ulcerations, piles, bruises, etc. It relieves pain quickly and heals thoroughly on the surface as well as below, preventing infection and reducing inflammation.

Directions: Apply freely to the affected parts either with the hand or on a soft cloth. Use a bandage for protection.

Formula No. 5

Powdered Aluminum		Eucalyptol	1/2 oz.
Acetate	1/4 lb.	Oil Cade	1 1/2 oz.
Zinc Oxide	1/2 lb.	Amber Petrolatum	4 lb.
Powdered Calomel	2 oz.		

Mix the powders and oils intimately with the petrolatum cold; a small ointment mixer being ideal for this purpose.

This ointment is recommended for many kinds of skin trouble and is very healing for both humans and animals.

Apply liberally to the affected areas.

HEALING, SOOTHING OINTMENT

Formula No. 1

Phenol Crystals	400 gr.	Oil of Thyme	40 min.
Camphor	160 gr.	Oil of Juniper	40 min.
Menthol	160 gr.	Oil of Nutmeg	10 min.
Thymol	20 gr.	Peru Balsam	80 gr.
Oil of Eucalyptus	1 fl. oz.	Precipitated Sulfur	1/4 lb.
Oil of Turpentine	1/2 fl. oz.	White Petrolatum	
Oil of Cedar Leaves	80 min.		to make 5 lb.
Oil of Wintergreen	80 min.		

Mix all ingredients except the last three and liquefy. Then add to the base which is best prepared by carefully melting the petrolatum then stirring in the balsam of Peru and sulfur. Then run through a single layer of gauze or cheesecloth so that the sulfur is finely distributed. Let cool somewhat and when very soft stir in the volatiles previously mixed.

This ointment is recommended as an auxiliary in the treatment of congestions of the upper respiratory organs, such as head and chest colds. It is very effective for sunburns, prickly heat, insect bites, piles, skin eruptions, pimples, fire burns, etc.

Directions: For head colds, insert the ointment in the nostrils and draw it well up by deep breathing, inhaling the vapors of the melted ointment; for chest colds, massage the chest and throat thoroughly and cover with a flannel cloth. For childrens' colds use combined treatment. For burns, sunburn, piles, pimples, and minor skin eruptions, apply as often as necessary.

Formula No. 2

Beta-Naphthol	0.50	Zinc Oxide	5.00
Phenol	1.00	Eucalyptol	1.00
Camphor	1.00	Oil Pinus Sylvestris	0.50
Menthol	1.00	White Paraffin	10.00
Boric Acid	0.62	White Petrolatum	78.38
Methyl Salicylate	1.00		

Mix in the order listed. Melt last two ingredients together separately and then let cool. While still warm and very soft combine the other ingredients previously mixed, with it. Rub up the zinc oxide well so that it will not be gritty.

This ointment is recommended for the relief of painful irritations caused by burns, chaps, scalds, chafing, piles, sunburn, windburn, chilblains, insect bites and stings, colds in the head and chest, etc.

For burns, chaps, insect bites and stings, sunburn, etc., apply to the affected area; for colds in the head, insert a small amount in the nostril and draw well up by deep breathing; for colds in the chest apply over the chest and rub in well, covering the chest with a soft cloth; for piles, apply two or three times a day, especially on retiring.

CARBOLIC SALVE COMPOUND

Liquified Carbolic Acid	3 dr.	Balsam of Peru	1½ dr.
Camphor Gum	2 dr.	Oil of Sassafras	1 dr.
Zinc Oxide	½ oz.	Oil of Eucalyptus	1 dr.
Calamine	½ oz.	Amber Petrolatum	7 oz.

Melt the petrolatum, remove it from heat, add the camphor, stir the mixed powders slowly in; then add the carbolic acid and oils and finally, the balsam of Peru. Mix to a smooth ointment in a mortar or run through an ointment mill.

This is an antiseptic ointment which promotes healing. It relieves the discomforts of superficial burns, minor cuts, and wounds.

Directions: Apply to the affected area. Use a bandage to keep in place or as protection.

HEALING, ANTISEPTIC OINTMENT

	%		%
Alpha Naphthol	18	Amber Petrolatum	25
Glycerin	25	Paraffin	5
Lanolin	25	Menthol	2

Melt the petrolatum with the paraffin and let cool. In the meantime, dissolve the alpha naphthol in as little alcohol as possible and add it to the glycerin. Place this on a water bath to evaporate the alcohol, let cool, and add the menthol in a fine powder form to this and mix with the lanolin. Then blend in the petrolatum-paraffin mixture.

This ointment is recommended for cuts, burns, scratches, rashes, sunburn, pimples, chapped skin, piles, poison ivy, itching discomforts of skin and scalp. It is also beneficial after shaving.

SKIN OINTMENT

	oz.		oz.
Bismuth Subgallate	2	Camphor	1½
Zinc Oxide	16	Oil of Eucalyptus	2
Cornstarch	16	Menthol	1
Boric Acid Powder	2	Benzocaine (Free Base)	1
Salicylic Acid	1	Benadryl (Free Base)	1½
Phenol	½	Anhydrous Lanolin	3
Oil of Cade	½	White Petrolatum	32

Mix the first four items in a jar by tumbling or rotating. Melt the lanolin with the petrolatum on a water bath (or over a steam-bath) to a temperature not exceeding 70°C. Add successively the menthol, oil of eucalyptus, camphor, salicylic acid, benzocaine, and benadryl, with stirring. Finally add the phenol and oil of cade. When a homogeneous melt has been obtained, add, with constant stirring, the mixture of powders. Continue stirring, preferably in an ointment mill, until semisolid.

This ointment is recommended for the treatment of eczema in its various forms, scaly skin or scalp, itch, tetter, pimples, ring worms, old sores, saltrheum, barber's itch, acne, rash, prickly heat, and other kindred skin affections. The benzocaine by its analgesic action and the benadryl by its antiallergic action enhance the effectiveness of this ointment.

Directions: Clean the areas with warm water and pure castile soap. Dry well. Apply the ointment three times daily for 1 week. Cover with a clean cloth or bandage, if necessary. Then apply once daily. A good blood purifier liquid or tablet for internal treatment is suggested.

COMPOUND SKIN OINTMENT

Bismuth Subgallate	2 oz.	Salicylic Acid	2 oz.
Zinc Oxide	1 lb.	Camphor Gum	1½ oz.
Cornstarch	1 lb.	Oil of Eucalyptus	2 oz.
Calomel	2 oz.	Menthol	1 oz.
Boric Acid Powder	2 oz.	Petrolatum	to make 5 lb.
Phenol	2 oz.		
Oil of Cade	2 oz.		

Melt the petrolatum, remove from the fire and stir in the camphor, menthol, oil of eucalyptus, oil of cade, and phenol. Mix all the other ingredients, and sift these slowly into the petrolatum mixture, grinding to a perfectly smooth paste.

This ointment is recommended for the treatment of eczema in its various forms, scaly skin or scalp, itch, tetter, pimples, ring worms, old sores, saltrheum, barber's itch, acne, rashes, prickly heat, and other kindred skin affections.

Directions: Clean the areas with warm water and pure castile soap. Dry well. Apply the ointment three times daily for 1 week. Cover with a clean cloth or bandage, if necessary. Then apply once daily. A good liquid or tablet-form blood purifier for internal treatment is suggested.

A AND D OINTMENT

Vitamin A (Pure Oil)	3 g. (10 million units).
Vitamin D (in Sesame Oil)	to make 2 million units.
Oxyquinoline Base	2 g.
Sulfathiazole	7 g.
Zinc Oxide	1 oz.
Anhydrous Lanolin	2 oz.
White Petrolatum	13 oz.

Heat the petrolatum, lanolin, oxyquinoline, and sulfathiazole together to a temperature not exceeding 60°C. and stir in an ointment mill until homogenous. Add the sifted zinc oxide powder gradually, with continuous stirring.

When cooled to 40°C., add the vitamins, mixed together in sesame oil, and stir $\frac{1}{2}$ hour to ensure complete mixing.

Pour into $\frac{1}{4}$ -ounce jars, seal with tin foil, and cap securely at once to avoid oxidation.

Directions: If the burned surface is not clean and conditions will permit, wash gently with a mild soap and water, dry, and apply the ointment gently over the entire area. Cover with sterilized gauze and hold the dressing in place with adhesive tape.

Ointments containing vitamins A and D stimulate healing in burns and wounds, promoting the formation of healthy tissue, in addition to soothing.

Caution: The treatment of severe burns, sunburns, or slow-healing wounds should be entrusted to a physician. Observe caution pertaining to use of SULFAS.

PILE TREATMENT

Balsam of Peru	$\frac{1}{2}$ oz.	Menthol	160 gr.
Ichthyol	1 oz.	Tannic Acid	$1\frac{1}{2}$ oz.
Extract of		Thymol	160 gr.
Belladonna	$\frac{1}{2}$ oz.	Phenol Crystals	$\frac{1}{2}$ oz.
Extract of		Ephedrine Hydro-	
Stramonium	160 gr.	chloride	60 gr.
Extract of		Paraffin Wax	1 oz.
Witch Hazel	320 gr.	Petrolatum	$1\frac{1}{4}$ lb.

Melt the paraffin with the petrolatum, remove from the fire, and stir in the menthol and thymol. When melted, add the phenol. Rub up the extracts with the balsam of Peru and ichthyol, adding the tannic acid and ephedrine, both in fine powdered form. Then combine this mixture with the one previously made. Mix thoroughly or grind the mixture through an ointment mill.

This ointment is best put up in collapsible tubes, having a special rectal nozzle attachment.

Directions: Wash the parts thoroughly with warm water and dry thoroughly. Place the nozzle on the tube, insert in the rectum and squeeze

out a small quantity of the ointment. This should be done night and morning and in severe cases more frequently as may be required.

Keep the bowels open by using a mild laxative; avoid the use of drastic cathartics.

COMPOUND MUSTARD OINTMENT

White Petrolatum	5 lb.	Methyl Salicylate	8 fl. oz.
Paraffin Wax	1½ lb.	Menthol	2 oz.
Anhydrous Lanolin	1¼ lb.	True Oil of Mustard	1 fl. oz.

Melt the petrolatum with the paraffin and lanolin. Remove from the fire and add the menthol. When cooled down a little, add the methyl salicylate and oil of mustard.

This counter-irritant ointment is used in the treatment of chest colds, local congestions, coughs due to colds, and minor throat irritations, muscular and rheumatic pains.

Directions: Apply to the affected area, rubbing briskly. Hot applications before applying will enhance its effectiveness.

Caution: Do not apply to irritated or broken skin. Keep away from the eyes. If used on sensitive skins or on children, dilute with an equal amount of petrolatum or cold cream.

MODIFIED ANALGESIC BALM

Formula No. 1

Anhydrous Lanolin	2 lb.	Methyl Salicylate	4 fl. oz.
Petrolatum	13 oz.	Artificial Oil of	
White Beeswax	10 oz.	Mustard	¼ oz.
Water	10 fl. oz.	Oleoresin of	
Borax	¼ oz.	Capsicum	15 gr.
Menthol	1 oz.		

Melt the beeswax on a water bath; add the lanolin and petrolatum, and continue heating until melted and mixed with the wax. Dissolve the borax in the water by means of heat. Pour the borax solution into the wax-lanolin mixture and continue to stir until it forms a perfect combination. Remove from the fire and add the menthol. Beat or stir until it begins to thicken a little, then add the methyl salicylate and the oleoresin of capsicum which has been rubbed up with the oil of mustard. Mix well and fill into tubes while still warm.

Formula No. 2

(Greaseless)

Double-Pressed		Menthol	3	oz.
Stearic Acid	60 oz.	Methyl Salicylate	12	fl. oz.
Glycerin	40 fl. oz.	Artificial Oil of		
White Mineral Oil	20 fl. oz.	Mustard	1/2	oz.
Water	276 fl. oz.	Oleoresin of		
Concentrated Am-		Capsicum	30	gr.
monia (26°)	6 fl. oz.			

Melt the stearic acid. Heat the water to 160°F., and add the ammonia. Pour this mixture into the melted stearic acid and stir until it forms a smooth mixture. Then stir in the glycerin and white mineral oil. Remove from the fire and add the menthol; let cool and when it begins to thicken a little, add the methyl salicylate and the oleoresin of capsicum rubbed up with the oil of mustard. Mix well and fill into tubes.

This double action analgesic-counter-irritant ointment is recommended as an external application for rheumatic pains, lumbago, sprains and strains of muscles and tendons, muscular soreness from exposure, fatigue, exertion or dampness.

Directions: Apply with moderate friction to the affected area. If the skin is sensitive, apply lightly with little friction. If used on children, dilute with equal amounts of petrolatum or cold cream.

Caution: Do not apply to open wounds or broken skin. Be careful not to get it in the eyes, and do not bandage after application.

CAPSICUM LINIMENT OINTMENT

Oleoresin of Capsicum	2 1/2 oz.	Paraffin	1 lb. 5	oz.
Oil of Origanum	1 oz.	Fluid Extract		
Oil of Sassafras	1 oz.	of Aconite	1/2	fl. oz.
Oil of Turpentine	2 oz.	Petrolatum	3	lb.
Camphor Gum	4 oz.	Alkanet Root	about 4	oz.

Place the alkanet root in a muslin bag, hanging this bag suspended into the pan in which the petrolatum and paraffin were melted. Let slow heat stay under the pan until the desired shade of coloring has been taken out of the root. Let cool; then stir in the other ingredients previously mixed, using a small wooden paddle. Mix thoroughly.

This counterirritant ointment is an external preparation for rheumatic pains, lumbago, sprains and strains of muscles and tendons, muscular

soreness from exposure, exertion, dampness or fatigue, pains in joints and sciatica.

Directions: Apply to the affected area with little rubbing as excessive rubbing may cause blistering. For pronounced effect, massage the skin until the ointment disappears.

Caution: Do not apply to mucous membranes, inflamed or broken skin or immediately after warm bath. Keep from the eyes. For use on sensitive skins or on children, dilute with twice the amount of petrolatum.

VAPOR-TYPE CHEST SALVE

Camphor Gum	6 oz.	Turpentine	8 oz.
Menthol	8 oz.	Paraffin	1½ lb.
Methyl Salicylate	6 oz.	White or Yellow	
Oil of Eucalyptus	10 oz.	Petrolatum	16 lb.
Oil of Cajeput	10 oz.	Color	to suit

Melt the petrolatum and paraffin together, using no more heat than is necessary to melt the paraffin, which should be cut or broken up small to facilitate melting. Remove from the fire and stir in the other ingredients, continuing to stir until completely dissolved and mixed.

If a white salve is wanted, use white petrolatum and do not color. For a light-yellow salve, use yellow petrolatum and no further color. If a green salve is wanted, use enough oil-soluble chlorophyll to get the desired color.

If chlorophyll is used, it is best to mix this with the melted petrolatum and paraffin before adding the other ingredients, stirring the mixture until the color is perfectly even. Use care not to overcolor.

As soon as all ingredients are completely combined, pour at once into jars. Leave the lids off until the salve is cooled off to prevent sweating.

This salve is an external application for certain forms of local congestion and irritation, for head colds, nasal irritations, chest colds, throat irritations, and coughs due to colds; also as a medicated dressing for bruises, frost bites, stings or bites of nonvenomous insects, sunburn, minor burns, and scalds. It is beneficial for muscular soreness due to strenuous exercise.

Directions: For head colds and nasal irritations, place in nostrils and draw up. Melt a spoonful over boiling water and inhale the vapors. For chest colds, apply freely over the chest and rub in well and cover with warm cloth, flannel being preferred; for coughs due to colds, place a small amount on the tongue; when melted, swallow slowly; for throat irrita-

tions, swallow a small amount and apply externally with friction or massage. Cover the throat with warm cloth; for other external uses, apply as conditions may require.

ANTISEPTIC, VAPORIZING FAMILY SALVE

Yellow Petrolatum	10 lb.	Menthol	6 oz.
Light-Yellow Resin	12 oz.	Camphor	4 oz.
Yellow Beeswax	8 oz.	Methyl Salicylate	8 oz.
Carbolic Acid Crystals	4 oz.		

Melt the petrolatum, wax and resin together. Add the camphor gum and when dissolved remove from the fire and add the carbolic acid crystals, menthol, and methyl salicylate in this order. Mix well and pour into ointment boxes or jars. Leave the lids off until cold.

This ointment combines the properties of the vapor-type salves with the household type. It is suitable for cuts, burns, lacerations, sunburn, head colds, etc. It allays pain and stimulates healing. Apply liberally to the affected area.

ANTISEPTIC, ANALGESIC AND DEODORANT FOOT OINTMENT

Formula No. 1

Yellow or White		Methyl Salicylate	2 fl. oz.
Petrolatum	1 lb.	Boric Acid	1 oz.
Paraffin Wax	3 oz.	Benzoic Acid	1/2 oz.

Melt the wax with the petrolatum, remove from the fire and stir until it begins to thicken a little; then add the methyl salicylate and mix well. Sift in the boric and benzoic acids and continue to stir until it forms a perfectly smooth ointment.

Formula No. 2

(Greaseless)

Stearic Acid	2 oz.	Methyl Salicylate	1 1/4 fl. oz.
Water	3 fl. oz.	Boric Acid	3/4 oz.
Glycerin	2 fl. oz.	Benzoic Acid	3/8 oz.
Potassium Carbonate	80 gr.		

Dissolve the potassium carbonate in 1 ounce of water. Add the glycerin to the remainder of the water and melt the stearic acid in this mixture. When completely melted, slowly add the potassium carbonate solution, with constant stirring. Use a fairly large kettle to prevent the mixture from frothing over when the potassium carbonate solution is added.

When the potassium carbonate solution is all in, remove from the fire and beat with an egg beater until it begins to thicken. Then add the methyl salicylate and sift in the boric and benzoic acids, continuing to mix until it forms a firm cream.

This antiseptic, analgesic and deodorant foot ointment will relieve tender, sore, painful, or sensitive feet. It is also recommended for muscular soreness and irritation of the feet when not due to functional disorder.

Directions: Wash the feet in hot water and a little mild soap. Dry thoroughly and then apply the ointment, rubbing well.

ANTISEPTIC, COOLING OINTMENT

Formula No. 1

Stearic Acid	6 lb.	Caustic Potash	
White Mineral Oil	3 pt.	(Pure Sticks)	4 oz.
Glycerin	1 pt.	Thymol	4 oz.
Water	3½ gal.	Camphor Gum	2 oz.
		Menthol	¼ oz.

Break the stearic acid into small pieces and melt on a water bath or in a double boiler. Do not heat above 160°F. Dissolve the caustic potash in 1 quart of water, heating to 160°F. and add this solution to the melted stearic acid. Heat the remainder of the water to the same temperature and add gradually, boiling the whole mixture slowly for about 10 minutes. Then add the mineral oil slowly, mixing well. Finally add the glycerin and mix. Add the thymol, camphor gum and menthol while the base mixture is still hot enough to melt them.

Formula No. 2

Double-Pressed		Concentrated Am-	
Stearic Acid	60 oz.	monia (26°)	6 fl. oz.
Glycerin	40 fl. oz.	Thymol Crystals	6 oz.
White Mineral Oil	20 fl. oz.	Eucalyptol	4 fl. oz.
Water	276 fl. oz.		

Melt the stearic acid as in Formula No. 1. Heat the water to 160°F. and add the ammonia. Pour this mixture into the melted stearic acid and stir until it forms a smooth mixture. Then stir in the glycerin and the white mineral oil. Remove from the fire and add the thymol crystals. Beat or stir until it thickens slightly, add the eucalyptol, and continue beating, keeping the sides of the container well scraped down, until it forms a smooth even cream.

Fill into jars when cold.

This greaseless, cooling and antiseptic ointment relieves the discomforts of sunburn, irritated burning skin, and chapped, cracked skin; it is also suitable for healing blemishes, for tired, aching, and burning feet, improving the complexion and after shaving.

Directions: For skin discomforts, apply freely until relieved; to improve the complexion, apply as any toilet cream; for shaving comfort, apply a little before lathering or after shaving; for bites or stings of insects, apply freely.

MEDICATED CREAM OINTMENT

Powdered Aluminum		Eucalyptol	80 min.
Acetate	4 oz.	Amber Petrolatum	16 oz.
Camphor Gum	2 oz.	Cold Cream	3 lb. 7 oz.
Menthol	3 oz.		

Liquefy the camphor and menthol by rubbing up together in a mortar; add the eucalyptol. Rub up the aluminum acetate with the petrolatum, mix all together, and incorporate thoroughly.

This medicated ointment is beneficial to chapped or sunburned skin, also for chafing, rashes, dry tender skins, etc. It is a healing cream and may also be used as an astringent, tissue or cold cream as well as after shaving. Apply with the finger tips and rub in lightly.

OILY MASSAGE SKIN LOTION

Oxyquinoline Sulfate	4 g.	Fluid Extract of	
Menthol	12 g.	Witch Hazel	400 cc.
Benzoic Acid	2 g.	Boric Acid Crystals	20 g.
Anhydrous Lanolin	160 g.	Water	3,200 cc.
Cetyl Alcohol	80 g.	Duponol (Sodium Lauryl Sulfate)	40 g.

Heat the water in a 2-gallon stainless steel or enameled pot to 80°C. and dissolve in it, with stirring, (mechanical stirrer) the boric acid, oxyquinoline sulfate, and Duponol.

Heat the other ingredients over a steam bath or on a water bath to 75°C. and, when homogeneous, add to the water solution, with constant mechanical stirring.

Dissolve the menthol and benzoic acid in the witch hazel extract and add to the stirred emulsion at about 40°C. Continue to stir until cool (25°C.).

Directions: To help prevent and eliminate bedsores, bathe the area frequently and gently with soap and water particularly bony prominences. Apply the lotion gently and often. Then keep the skin clean and dry, using powder to do so. When the skin shows signs of irritation, or reddened areas, repeat the procedure often. At least three times in 24 hours is suggested. Shake the bottle before applying.

CLEAR ASTRINGENT LOTION

	<i>For 100 cc.</i>	<i>For 1 qt.</i>
Oxyquinoline Sulfate	0.03 g.	0.30 g.
Tannic Acid	50.00 mg.	0.5 g.
Boric Acid	0.15 g.	1.5 g.
Benzoic Acid	0.1 g.	1.0 g.
Menthol	0.15 g.	1.5 g.
Witch Hazel	10.0 cc.	100.0 cc.
Alcohol	75.0 cc.	750.0 cc.
Water	100.0 cc.	1000.0 cc.

Dissolve the tannic and boric acid in the water. Dissolve the benzoic acid and the oxyquinoline sulfate in alcohol. Then add the menthol to the alcohol solution.

Mix the alcohol and water solutions together and add the witch hazel solution. **KEEP AWAY FROM FLAME!**

This soothing, cooling, astringent lotion is suggested for relieving the discomforts of bed-sores. Since bony prominences are mostly susceptible to bedsores, bathing or sponging frequently and spraying with this lotion is advisable.

Directions: After cleaning the area with a gentle soap and warm water, dry and apply by gentle sponging or spraying.

Caution: For external use only.

HOSPITAL AND HOUSEHOLD ANTISEPTIC, DEODORANT, AND DISINFECTANT SPRAY

Thymol	5.20 g.	Oxyquinoline	
Oil of Lavender Spike	0.50 oz.	Sulfate	5 cc. of 1:1,000
Potassium		Oil of Pinus	
Permanganate	0.52 g.	Pumil.	14 cc.
Chlorothymol (U.S.P.)	5.00 g.	Isopropyl Al-	
		cohol 90%	12 oz.
		Water to make	1 pt.

Add the thymol and chlorothymol to the isopropyl alcohol; follow with the oils of pinus and lavender. To this, add the oxyquinoline sulfate. Dissolve the potassium permanganate in 2 ounces of water and add this to the alcoholic mixture. Shake well and dilute to 1 pint.

This agreeably scented, lilac-colored, diffusible spray is an effective deodorant, antiseptic, germicide, and disinfectant. It is especially well adapted for use in the home and sickroom and is an excellent specialty to hospitals and physicians. It is effective in wash water for urinals and bedpans and for disinfecting the hands or in rinsing the clothes.

It is best used with an ordinary pump-type fly sprayer or it may be placed in saucers on hot radiators. A tablespoonful or more may be used to 1 quart of wash water.

BURN JELLY

Gelatin	7½ oz.	Anesthesin	730 gr.
Phenol	1 fl. oz.	Chlorbutanol	¼ oz.
Menthol	¼ oz.	Glycerin	1½ fl. oz.
Tannic Acid	1 oz.	Water	20 fl. oz.

Dissolve the gelatin in 16 fluid ounces of hot water. Dissolve the tannic acid in the remaining 4 ounces of water by means of heat. Rub up the phenol, menthol, anesthesin and chlorbutanol with the glycerin and add to the hot gelatin solution. Then add the hot tannic acid solution and mix well.

Due to the reaction between gelatin and tannic acid, products of this nature may form a semisolid mass on keeping for a time. There is no way of preventing this although the glycerin helps to some extent.

For a product to be kept over a long period the substitution of a heavy tragacanth mucilage (4 ounces of tragacanth to 1 gallon of water) for the gelatine solution is recommended.

Put up in glass jars or collapsible tubes.

Directions: Spread a small quantity of the jelly over the affected area, allowing it to dry. It is best to use a soft camel's hair brush in applying and spreading the jelly on the skin. Thin coatings are preferable to thick ones.

ANTISEPTIC HEALING BALM

Phenol Crystals	½ oz.
Eucalyptol	1 oz.

Pine Oil Compound		4 oz.
(Oil of Pumilio Pine	2 oz.)	
(Artificial Oil of Sassafras	2 oz.)	
(Oil of Origanum	1 oz.)	
(Oil of Erigeron	1 oz.)	
(Camphor Gum	1 oz.)	
(Menthol	$\frac{1}{8}$ oz.)	
(Turpentine	to make 1 pt.)	
Mix and dissolve		
Japanese Sassafrassy Oil of Camphor		4 oz.
Rosin Oil*	to make 1 pt.	

Mix thoroughly by dissolving the phenol in the rosin oil by gentle heat. Then add the eucalyptol, pine oil compound, and finally the oil of camphor. The rosin oil used should be of light color.

This preparation is an antiseptic compound that soothes and heals. It is intended as an application for cuts, wounds, scratches, lacerations, burns, etc. on man and to wire cuts, sore shoulders, saddle galls, flesh wounds, nail pricks, scratches, lacerations, etc. on animals.

Directions: Apply directly to the area with a swab or other convenient method, covering the wound entirely. Bandage may be applied for protection if desired. If the wound is foul, wash with warm water and castile soap, dry well, and apply. Do not use water after applying the remedy.

This is for external use only. Shake the bottle before applying.

* U. S. Dispensatory, 20th Edition.

ANTISEPTIC, HEALING, ANALGESIC OIL COMPOUND

Oil of Pumilio Pine	2 oz.	Camphor Gum	1 oz.
Artificial Oil of Sassafras	2 oz.	Menthol	$\frac{1}{8}$ oz.
Oil of Origanum	1 oz.	Turpentine	to make 1 pt.
Oil of Erigeron	1 oz.		

Mix and dissolve. Color a light brown with oil-soluble brown (Fritzche Bros., New York City).

This compound is recommended as a healing antiseptic and as an analgesic liniment and may be used on man as well as animals for cuts, scratches, lacerations, bruises, sprains, etc. It checks the flow of blood and relieves pain. It is an excellent liniment for muscular aches, sore muscles, rheumatic pains, and strains of muscles and tendons.

Directions: Apply freely to wounds and if possible bandage loosely

and keep the bandage moist with oil. If to be used as a liniment, apply to the affected area and massage gently.

If used on dogs it should be diluted with an equal amount of olive oil.

ANTISEPTIC HEALING OIL

Oil of Pine Needles	2 oz.	Oil of Red Thyme	2 oz.
Oil of Tar	1 oz.	Oil of Sassafras	1½ oz.
Phenol Crystals	1 oz.	Oil of Eucalyptus	1 oz.
Camphor Gum	1½ oz.	Turpentine	½ pt.
Oil of Hemlock	1½ oz.	Raw Linseed Oil	2 pt.

Mix thoroughly, first rubbing up the phenol and camphor together till liquefied; then add the other ingredients and mix well.

This preparation is recommended for healing flesh wounds, cuts, scratches, lacerations, burns, scalds, sores, etc. It is adapted to both human and veterinary use.

Directions: Apply liberally, covering all injured surfaces, using a soft cloth, swab, or feather to apply but do not rub as rubbing irritates flesh wounds, burns, etc. If the wound is foul, wash with warm water and castile soap and dry well before applying the oil. A light bandage may be used to keep the wound clean. This preparation is for external use only.

HEALING ASTRINGENT

Aluminum Acetate	320 gr.	Tincture of Arnica	4 fl. oz.
Zinc Sulfate	320 gr.	Liquefied Phenol	30 min.
Tannic Acid	320 gr.	Camphor Water	8 oz.
Lead Acetate	15 gr.	Water	to make 32 oz.

Dissolve the first four ingredients in 1 pint of water, add the camphor water, tincture of arnica, and phenol; then add more water to make 32 ounces of finished product. Should a darker shade be desired, color with a little caramel.

This antiseptic, healing, astringent preparation may be used in both human and animal treatment. It is effective for raw and running wounds, cuts, scratches, and lacerations.

Directions: For human cuts, wounds, scratches, burns, etc., apply freely with a soft cloth, small sponge, or cotton swab. If the wound is foul, wash with warm water and castile soap. Bandage to keep clean. For canker and sore mouth, apply with a swab. For sore, tender feet, apply as above.

For animals, apply freely to barb-wire cuts, scratches, lacerations, wounds, sore shoulders, neck or back, fistulas, ulcers, burns, sore mouth, etc.

Application should be made three or four times a day. Do not use from a metal container but from glass or earthen dish or direct from the bottle.

This preparation may be used in the mouth, as mentioned, but should not be swallowed.

ANTISEPTIC HEALING LIQUID

Alpha-Naphthol	18 oz.	Alcohol	1/2 oz.
Anhydrous Soap Base*	15.83 oz.	Water	to make 100 oz.
Glycerin	32 oz.		

Mix the alpha-naphthol with the alcohol, adding the glycerin and finally the water. Heat carefully on a water-bath until a uniform clear mixture is obtained. The use of more alcohol than indicated in the formula should be avoided if possible as it is almost entirely evaporated in the process.

This formula yields an effective antiseptic and healing agent.

Directions: In most cases, it may be used full strength when applied to small cuts, wounds, scratches. As a first-aid solution, use a tablespoonful to a quart of water, hot preferred. As a first-aid dressing to small wounds, cuts, scratches it may be used full strength or in a mixture of a 1/2 ounce in 5 ounces of glycerin. If to be applied to large wounds, burns, scalds, etc., dress with a solution of a teaspoonful in a quart of water. This solution may also be used in dressing running sores, old wounds, etc. For dressing infected wounds, use a teaspoonful to a pint of hot water. For rusty-nail wounds and bites of dogs, swab out with full strength liquid, then dress with a solution of a teaspoonful to a glass of water. For personal hygiene use a tablespoonful to a quart of water.

Wounds to which this antiseptic is applied full strength should not be bandaged; if this is required, dress with the diluted solutions.

Recommended for human and veterinary uses.

*ANHYDROUS SOAP BASE

	lb.		lb.
Cocoonut Oil	10	Water	3
Potassium Hydroxide	2		

Heat the oil in a large tarred vessel. Make a solution of the potassium hydroxide and water, then add to the warm or hot oil, and stir vigorously with a wooden paddle till completely saponified. A thick smooth paste should be obtained which, when a few drops are added to hot water, dissolves completely. Then add enough hot water slowly, with constant stirring, until the total contents of the vessel weigh 20 pounds.

ANTISEPTIC OIL

Camphor Gum	1 oz.	Methyl Salicylate	2 fl. oz.
Phenol Crystals	1 oz.	Eucalyptol	1 fl. oz.
Oil of Pine Needles	3 fl. oz.	White Mineral Oil	1 gal.
Sassafrassy Oil of Camphor	2 fl. oz.		

Mix the camphor and phenol crystals and heat gently on a water bath until completely melted. Add the oil of pine needles, oil of camphor, methyl salicylate, and eucalyptol, mixing thoroughly and then stir this mixture into the white mineral oil.

This antiseptic oil is recommended for application to cuts, wounds, bruises, etc. It may be applied to gauze or cotton and used as a dressing for such conditions. For burns, scalds, etc., apply and cover with a soft cloth. If used as spray in the treatment of catarrh, etc., it should be diluted with an additional 2 gallons of white mineral oil and applied from an oil atomizer for spraying the nose and throat.

ANTISEPTIC DRESSING FOR FIRST AID

Pearson-Type Creolin	1.0 g.	Oil of Eucalyptus	1 g.
Liquefied Phenol	3.0 g.	Alcohol	10 cc.
Oil of Pine Needles	0.5 cc.	Castor or Mineral Oil	
Oil of Sassafras	0.5 cc.	to make	270 cc.

Dissolve the phenol and creolin in the alcohol. Warm the mineral oil and add the pine, sassafras, and eucalyptus oils. When the mixture is completed, add the alcoholic solution and mix well.

Directions: Apply to the affected area as an antiseptic dressing.

This dressing may be used as is or diluted with olive or mineral oil for cuts, burns, scratches, etc., for humans or animals.

HEALING ANTISEPTIC LIQUID

Formula No. 1

	Parts		Parts
Phenol Crystals	5	White Mineral Oil	90
Camphor	5		

Mix in the order given. The phenol and camphor will liquefy when mixed, then add the oil.

Formula No. 2

	Parts		Parts
Phenol Crystals	20	White Mineral Oil	40
Camphor	40		

Mix in a mortar in the order given, rubbing the first two until they liquefy, then mix in the oil. If necessary filter clear through a paper filter. Olive or mineral oil may be used to dilute if desired.

This soothing, healing liquid is good for cuts, scratches, skin abrasions, lacerations, minor burns, insect bites and stings, etc. It may be used in treating barb-wire cuts, wounds, scratches, saddle and harness galls, ulcers, etc. of animals. Do not mix it with water and have the parts thoroughly dry before applying.

Directions: For minor cuts and lacerations which bleed freely, bathe with cool water, dry, and apply freely; for scratches and skin abrasions that do not bleed, cleanse with warm water, dry, and apply freely; for minor burns, apply freely and bandage to keep clean; for sunburn, poison ivy, insect bites and stings, minor skin irritations, etc., apply freely; for chilblains, apply to the area.

DRY POWDER DRESSING

	Parts		Parts
Boric Acid	67.39	Acetanilide	20.00
Thymol Iodide	3.25	Phenyl Salicylate	1.00
Bismuth Subiodide	2.00	Phenol	.50
Cinchonine Peroxide*	4.92	Formaldehyde Gelatin**	.94

This is an efficient antiseptic powder and surgical dry dressing. It may be applied to cuts, bruises, scratches, etc. Dust lightly over the affected area.

Have all ingredients in fine powder and mix well together.

* The cinchonine peroxide is an unusual chemical which, however is available from chemical supply houses. The sulfate would do just as well.

** The formaldehyde gelatin is the real problem. Its object is to get the formaldehyde into a powder form. To make it use:

Formaldehyde	1.25	Gelatin	8.15
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Place the gelatin in a dish with just enough water to cover and let set for 12 hours then add again as much water and warm slightly until the gelatin is thoroughly dissolved, let cool well, and then add the formaldehyde; pour into a very shallow dish and place into a desiccator the bottom of which is filled with fresh calcium chloride. Close the top tight and let stand until the gelatin has dried out hard. Then loosen with a spatula, break up well, place into a mortar, and powder finely.

HEALING ANTISEPTIC POWDER

Bismuth Io-Caseinate Powder*		Powdered Zinc Stearate	19.002
	16.000	Acetanilide	13.333
Boric Acid	23.000	Zinc Sulfocarbolate	2.300
Bismuth Subgallate	4.600	Thymol	.500
Powdered Alum	0.765	Eucalyptol	.250
Purified Powdered Talc	20.000	Menthol	.250

Have all the ingredients in very fine powders and mix thoroughly.

This antiseptic first-aid surgical dry dressing powder promotes healing of cuts, scratches, minor wounds and is soothing when applied for heat rash, chafing, mosquito bites, sunburn, and itching feet. It is adapted to both human and veterinary use.

* The bismuth io-caseinate powder is a bismuth subiodide and formaldehyde casein compound which may be prepared as follows:

Bismuth Subiodide	3 g.	Water	8 oz.
Formaldehyde	1 cc.	Sodium Hydroxide	3 g.
Powdered casein	12 g.		

Mix in the order listed and stir well and often for 24 hours, then add drop by drop $\frac{1}{2}$ ounce acetic acid with constant stirring; then filter out the sediment by passing through a paper filter, discard the clear liquid, and wash the sediment remaining on the paper by passing through it repeated small portions of warm water until the clear washings do not color blue litmus paper red. Then let the sediment dry well on the filter. Finally transfer into a dry mortar and powder fine.

COMPOUND DIURETIC TABLETS

Each tablet contains:

Powdered Extract of Triticum	1 gr.	Powdered Extract of Buchu	$\frac{3}{4}$ gr.
Powdered Extract of Saw Palmetto	1 gr.	Powdered Extract of Dandelion	$\frac{1}{4}$ gr.
Powdered Extract of Corn Silk	1 gr.	Haarlem Oil	$\frac{1}{2}$ min.
Powdered Extract of Uva Ursi	$\frac{1}{2}$ gr.	Juniper Oil	$\frac{1}{2}$ min.
Potassium Nitrate	1 gr.	Santal Oil	$\frac{1}{4}$ min.
		Base*	

* In making these tablets, at least 1 grain of starch will be required to hold the oils, along with a little talc to make the mass work freely in the machine. About $\frac{1}{4}$ grain of talc will be needed in each tablet. Sugar is not desirable in massing this mixture. The oils should be mixed with the starch and powdered extracts, the talc added and mixed well; then the potassium nitrate should be added and the whole moistened with a little gum water; finally granulated as usual and pressed in the machine.

Where tablets are to be coated, care must be taken not to make too large a tablet, remembering that the coating adds considerably to the size of the tablet. A finished tablet of about 7 grains is as large as can be taken conveniently.

This is a stimulant diuretic for the kidneys and the urinary tract.

Dose: Adults, one or two tablets, four times a day, before or after meals and at bedtime, with a glass of water.

DIURETIC COMPOUND

Formula No. 1

Ground Valerian	½ oz.	Copaiba Balsam	⅛ oz.
Ground Scullcap	1 oz.	Oil of Cinnamon	10 min.
Powdered Rhubarb	8 oz.	Methyl Salicylate	
Ground Podophyllum	4 oz.	Natural or True	90 min.
Ground Swamp		Oil of Anise	10 min.
Sassafras	8 oz.	Oil of Peppermint	5 min.
Buchu	1 oz.	Venice Turpentine	⅛ oz.
Powdered Aloes	½ oz.	Alcohol	2 oz.
Ground Calumba	¼ oz.	Simple Syrup	4 pt.
Fluid Tolu for Syrup	½ oz.	Water	to make 1 gal.
Oil of Juniper	20 min.		

Mix the first eight drugs well. Moisten with a mixture of 9.5 ounces of alcohol and 52.5 ounces of water, pack into a percolator, and let the percolation proceed. Add the next nine ingredients to the percolate, then add the syrup, and finally pass enough water through the percolator to make the finished product measure 1 gallon.

This is a mildly stimulating diuretic to the kidneys and will promote a normal flow of urine.

Directions: The dose for adults is 1 to 2 teaspoonfuls at a time. It may be taken in water or milk before, after, or between meals. Children may take it in proportion to age.

Shake the bottle well before taking.

DIURETIC COMPOUND

Formula No. 2

Ground Saw Palmetto	4 oz.	Ground Triticum	2 oz.
Ground Stillingia	4 oz.	Ground Ipecac	1 oz.
Ground Juniper Berries	2 oz.	Hexamethyltetramine	8 oz.
Ground Taraxacum	2 oz.	Ammonium Chloride	8 oz.
Ground Uva Ursi	4 oz.	Alcohol, U.S.P.	25.6 oz.
Ground Zea Mays	1.5 oz.	Water	to make 1 gal.

Percolate the drugs with a mixture of the alcohol and about 6 pints of water, passing more water through the percolator to make the percolate measure 7 pints. Dissolve the hexamethyltetramine and ammonium chloride in the percolate by agitation.

This is a mildly stimulating diuretic to the kidneys.

Directions: Adults, 1 to 2 teaspoonfuls before each meal and at bedtime. Children up to 12 years, $\frac{1}{4}$ teaspoonful; older children $\frac{1}{2}$ teaspoonful.

NERVE SEDATIVE AND TONIC COMPOUND

Sodium Glycero-phosphate	450	gr.	Fluid Extract of Avena Sativa	1	fl. oz.
Potassium Glycero-phosphate	450	gr.	Water	33	fl. oz.
Calcium Glycero-phosphate	250	gr.	Caffeine	62	gr.
85% Syrupy Phosphoric Acid	452	min.	Granulated Sugar	26 $\frac{1}{2}$	oz.
Muscatel Wine	44	fl. oz.	Pineapple Syrup	11	fl. oz.
Dried Egg Yolk	300	gr.	Glycerin	5 $\frac{1}{2}$	fl. oz.
95% Alcohol	8 $\frac{1}{4}$	oz.	Sodium Nucleinate	1	oz.
			Sodium Bromide	2	oz.
			Potassium Bromide	2	oz.
			Ammonium Bromide	1	oz.

Dissolve the egg yolk in a part of the water. Dissolve the caffeine in the remainder of the water by boiling. Use a porcelain or enamelled vessel. Mix these two solutions, after the caffeine solution has become cold. Dissolve the glycerophosphates in the muscatel wine. Mix the solutions, let stand for 2 days, and strain. Add the fluid extract of avena sativa, glycerin and syrup. Dissolve the sugar, sodium nucleinate, and bromides in the solution cold.

This compound is recommended as a sedative in functional nervous disturbances, sleeplessness, restlessness, and hysterical conditions and in cases where the nervous system has been weakened by overwork.

Directions: Adult dose, 1 or 2 teaspoonfuls in $\frac{1}{2}$ glass of water, three times a day; children, 12 to 18 years of age, one half of adult dose; for sleeplessness due to nervousness, adults may take 2 teaspoonfuls in $\frac{1}{2}$ glass of water before going to bed, otherwise it is preferably taken before meals.

Should the bromides contained in this preparation cause a rash on persons susceptible to such, its use should be discontinued until the rash disappears.

ALTERATIVE SEDATIVE COMPOUND

Sumbul Root	1 lb.	Potassium Iodide	6 oz.
Cinchona Bark	¼ lb.	Sodium Bromide	2½ lb.
Poke Root		Fluid Extract of	
(Phytolacca)	½ lb.	Ginger	3 fl. oz.
Celery Seed	2¼ lb.	Fluid Extract of	
Couch Grass		Celery Seeds	4 fl. oz.
(Triticum)	2¼ lb.	Sugar	4 lb.
Sarsaparilla	1 lb.	Alcohol, U.S.P.	2½ gal.
Senna Leaves	1 lb.	Water	to make 4½ gal.
Bitter Orange Peel	½ lb.		

Have the drugs in a medium powder and cover with the alcohol. Let macerate for a week, then drain off the liquid, pack in a percolator, and pass the liquid through the drugs, following with water enough to give 2½ gallons of percolate. In this dissolve the sodium bromide, potassium iodide and the sugar, then add water enough to make 4½ gallons. Add the fluid extracts and mix well.

This preparation is intended as an alterative and nerve tonic and is mildly laxative. Use bromides with caution.

Dose: Adults, one tablespoonful three or four times a day, taken preferably just before meals and at bedtime; children, in proportion to age.

Note: See "Food, Drug and Cosmetic Act" for comment pertaining to IODIDES and BROMIDES.

RHEUMATIC ANALGESIC LIQUID

Sodium Salicylate	10 oz.	Ground Red	
Potassium Iodide	½ oz.	Saunders	1½ oz.
Potassium Citrate	1½ oz.	Oil of	
Bitterless Fluid Extract		Sassafras	30 min.
of Cascara	4 oz.	Alcohol	25 oz. 288 min.
Ground Sassafras Bark	3 oz.	Water	to make 1 gal.

Macerate the sassafras bark, red saunders, alcohol in which the oil of sassafras has been dissolved, and 6 pints of water for 24 hours and then filter clear.

Add to the filtrate the remaining ingredients and water to make 1 gallon.

This is suitable for treating acute, subacute, and chronic rheumatism, lumbago, sciatica, rheumatic neuralgia, gout, muscular and articular rheumatics, and nerve pains of rheumatic origin.

Directions: Take 1 or 2 teaspoonfuls, according to severity of the case, diluted with water and followed by a glass of water, preferably hot, every 2 hours until the pain ceases; then after each meal and on retiring. The application of penetrating liniments or analgesic ointments are frequently beneficial.

ALTERATIVE-RESOLVENT COMPOUND

Potassium Iodide	256	gr.	Fluid Extract of	
Sodium Iodide	256	gr.	Lappa	1/2 oz.
Calcium Bromide	256	gr.	Fluid Extract of	
Magnesium Chloride	256	gr.	Taraxacum	1/2 oz.
Fluid Extract of			Fluid Extract of	
Sarsaparilla	1	oz.	Menispermum	1/2 oz.
Fluid Extract of			Alcohol	1 1/2 oz.
Stillingia	1/2	oz.	Water	to make 13 oz.
Fluid Extract of Rumex	1/2	oz.	Syrup	to make 16 oz.
Fluid Extract of				
Dulcamara	1/2	oz.		

Mix all except the syrup, add some powdered rotten stone, filter clear, add the water and then the syrup.

This preparation should be used only on or by a physician's prescription.

Dose: Adults, 1 teaspoonful in water before meals and at bedtime. Dosage and frequency of administration should otherwise be determined by the physician under whose direction the preparation is taken.

Caution: Iodide preparations should not be taken in tuberculosis or thyroid diseases except under the direction of a physician.

COMPOUND LINIMENT

Benzyl Benzoate	1 1/2	oz.	Camphor	2	oz.
Oil of Origanum	1	oz.	Ether	1	oz.
Oil of Erigeron	2	oz.	Chloroform	2	oz.
Oil of Sassafras	2	oz.	Turpentine	to make	2 pt.
Oil of Pine	1	oz.	Alkanet Root	to color	
Menthol	30	gr.			

Macerate the alkanet root in the turpentine until the desired shade of red is secured; then remove. Dissolve the menthol and camphor in the turpentine and then add the other ingredients. Mix thoroughly.

This will relieve rheumatic pains, muscular lumbago, neuritis, soreness from exposure, fatigue and sprains and strains of muscles and tendons.

Directions: Apply to affected parts with vigorous manual massage two or three times a day.

Caution: Do not use near flame or fire.

ABSORBENT LINIMENT

Ground Wormwood	2	dr.	Methyl Salicylate	1 fl. oz.
Calendula Flowers	$\frac{1}{2}$	oz.	Menthol	185 gr.
Oil of Wormwood	1	fl. oz.	Acetone	to make 1 pt.
Oil of Sassafras	1	fl. oz.		

Dissolve the oils in the acetone, add the menthol and dissolve; then pour over the wormwood and calendula flowers. Let stand for a week and then filter. Color green with spirit-soluble certified color.

Instead of acetone, isopropyl alcohol may be used and this will give an equally good product. Isopropyl alcohol will stand reducing with water to about 70% strength and still be a good solvent for the other substances.

This absorbent liniment is recommended for the relief of muscular aches and pains, cuts, bruises, strains and wrenches, bites of small insects, lacerations and is especially recommended for simple ringworm (sometimes called athlete's foot) of the toes and feet, for hot, aching feet and muscular stiff neck.

Apply locally to the affected area, with gentle rubbing, three or four times a day.

Caution: Keep away from open flame.

LINIMENT FOR EXTERNAL AND INTERNAL USE

Benzyl Benzoate	1	oz.	Tincture of Guaiac	1 oz.
Oil of Wintergreen True	$\frac{1}{2}$	oz.	Tincture of Catechu	1 oz.
Camphor Gum	$\frac{1}{2}$	oz.	Fir Balsam	1 oz.
Oil of Origanum	$\frac{1}{2}$	oz.	Chloroform	1 oz.
Oil of Sassafras	1	oz.	Alcohol	4 pt.
Oil of Hemlock	1	oz.	Alkanet Root	to color
Oil of Turpentine	1	oz.		

Add the ingredients to the alcohol in the order given, mixing well until completely dissolved after each addition.

The crushed alkanet root may be macerated with the alcohol before the other substances are added, or in the finished liniment. In either case, it must be filtered or strained to remove the root.

This is suitable for the relief of rhematic pains, muscular lumbago, neuralgia, sprains and strains of muscles and tendons and soreness from

exposure, fatigue, or dampness. It may be used internally in the treatment of colic and cramps and in the treatment of coughs due to colds and common sore throat. It is adapted to human as well as veterinary use.

Directions: For external use in muscular soreness, rheumatic pains, etc., apply, massaging the area gently; internally for adults, give $\frac{1}{2}$ to 1 teaspoonful in warm sweetened water for colic or cramps, rubbing the liniment over the stomach also; for coughs due to colds, 15 to 30 drops in a little sugar, three times a day for adults. Children may take it in proportion to age.

For colic in horses give about 4 tablespoonfuls in 1 pint of warm milk or water.

LIQUID ANALGESIC

Methyl Salicylate	16 fl. oz.	Eucalyptol	2 fl. oz.
Menthol	1 oz.		

Dissolve the menthol in the methyl salicylate with the aid of gentle heat (water bath) and add the eucalyptol to the mixture.

This is an external preparation for the relief of muscular aches and pains, sprains, and bruises. It is recommended for neuralgia and for chest and head colds.

Directions: Bathe the affected parts with warm water and apply with gentle massage, or apply directly to the area without bathing.

Caution: Do not use on broken skin and keep away from the eyes.

LINIMENT FOR EXTERNAL USE ONLY

Oleoresin of		Spirits of Turpentine	31 oz.
Capsicum	5 dr.	Kerosene	23 oz.
Artificial Oil of			
Sassafras	9 oz. 3 dr.		

Mix thoroughly and color with oil-soluble brown dye to the shade desired.

This is used for rheumatic pains, muscular soreness, lumbago, sprains and strains of muscles and tendons, and soreness from exertion, fatigue, or dampness.

Directions: Apply and rub lightly.

Caution: Keep away from flame or fire; also from eyes.

COMPOUND LINIMENT

Artificial Oil of Mustard	1 oz.	Methyl Salicylate	8 oz.
Oil of Cassia	3 oz.	Capsicum	2 oz.
Technical Oil of Origanum	4 oz.	Turpentine	2 pt.
Oil of Pine	4 oz.	Kerosene (Coal Oil)	1 gal.

Macerate the capsicum in the kerosene for 2 or 3 days, with occasional stirring. Then strain and add other ingredients.

If a yellow color is wanted, add enough liquid butter coloring to give the shade desired.

This liniment is recommended for the relief of rheumatic pains, muscular lumbago, sprains and strains of muscles and tendons, and soreness from exertion, fatigue, or dampness.

Directions: Apply freely to the affected parts, rubbing in well.

Caution: Do not use near exposed lights or open fire. Keep away from the eyes. For external use only.

LINIMENT

Formula No. 1

Methyl Salicylate	8 fl. oz.	Oil of Cassia	½ fl. oz.
Menthol	2 oz.	91% Isopropyl Alcohol	1 gal.
Artificial Oil of Sassafras	4 fl. oz.		

Dissolve the oils and menthol in the isopropyl alcohol.

This is recommended for the relief of rheumatic pains, muscular lumbago, neuralgia, soreness from exposure, dampness, and fatigue, sprains and strains of muscles and tendons. Use also to relieve the pain and soreness following sunburn, for superficial cuts, bruises and lacerations, insect bites and stings, ivy poisoning and foot irritations.

No permit or license is required for the purchase and use of isopropyl alcohol, and it is suited for making preparations for external use. The label should state: *Contains 83.2% Isopropyl Alcohol*. For external use only.

Formula No. 2

Oil of Red Thyme	11 oz.	Methyl Salicylate	5 oz.
Oil of Rosemary	5 oz.	Oil of Pine Needles	3 oz.
Oil of Spearmint	½ oz.	Camphor	½ oz.
Oil of Cassia	5 oz.	Alcohol	83 oz.
Oil of Gajeput	11 oz.	Alkanet Root	to color

Macerate the alkanet root in the alcohol until the desired shade has been secured; then remove. Add the oils and camphor and mix by thorough agitation.

Uses and method of application are the same as for the Compound Liniments listed previously.

COMPOUND LINIMENT

Benzyl Benzoate	1 oz.	Oil of Hemlock	1½ oz.
Camphor Gum	1 oz.	Oil of Wintergreen	
Myrrh Gum	1 oz.	True	1 oz.
Guaiac Gum	1 oz.	Powdered Capsicum	1 oz.
Oil of Sassafras	3 dr.	Turpentine	1 oz.
Oil of Origanum	2 dr.	Alcohol	4 pt.

Macerate the capsicum in the alcohol for a day, filter and add the other ingredients, one at a time, mixing well after each addition. Adding the three gums at one time will somewhat hasten the mixing.

This is suitable for the relief of pains from sprains and strains of muscles and tendons, rheumatic pains, neuralgia, muscular pains and muscular lumbago. It may be used internally for relieving cramps and colic.

It is adapted to both human and veterinary use.

Directions: Externally, apply freely to the affected area and massage vigorously. If the skin is tender and sensitive apply freely but do not rub. Internally, adults, for cramps, may take ½ to 1 teaspoonful in ½ cup of warm sweetened water and repeat if necessary in about 1 hour. For colic in horses, give 1 to 3 tablespoonfuls in 1 pint of milk.

LINIMENT

Formula No. 1

Chloral Hydrate	2 gr.	Olive Oil	240 min.
Menthol	10 gr.	Oil Soluble Chloro-	
Methyl Salicylate	220 min.	phyll (Merck)	to color

Mix the first three ingredients in a mortar in the order given, add the chlorophyll, then add the olive oil. Mix thoroughly and, if necessary, pass through a filter to make it perfectly clear.

This counter-irritant analgesic liniment will help relieve superficial pain, sore muscles, stiffness, sprains and bruises.

Directions for use: Cleanse the affected area with soap and water, dry

well. Apply the liniment moderately and rub but little. Do not use over broken skin surfaces.

Label Caution: Contains chloral hydrate which may be habit forming. To be used under medical supervision.

Formula No. 2

Sesame Oil	33 oz.	Eggs	2 whole and 2 yolks
Ammonia Water (U.S.P.)	11 oz.	Powdered Castile Soap	1 oz.
Spirits of Turpentine	16 oz.	Formaldehyde	1/2 oz.
Camphor Gum	4 oz.	Water	to make 1 gal.

Place the sesame oil and the ammonia water in a clean, dry 1 gallon bottle and shake until a good creamy mixture is obtained. Dissolve the camphor in the spirits of turpentine in a mortar, add the eggs, and triturate until a uniform emulsion is obtained; then add to the oil-ammonia in the bottle. Make a stiff paste of the castile soap and a little water; then gradually add more water and add to the whole in the bottle. Finally add the formaldehyde and then enough water to make 1 gallon and shake briskly to obtain a uniform creamy mixture.

Formula No. 3

Camphor Gum	4 oz.	28% Acetic Acid	10 fl. oz.
Turpentine	20 fl. oz.	10% Ammonia Water	40 fl. oz.
Powdered Castile Soap	8 oz.	Distilled Water	to make 1 gal.
Methyl Salicylate	2 dr.		

Dissolve the camphor in the turpentine, add the castile soap, and mix well. Then add the methyl salicylate and acetic acid, shaking well. To this, add the ammonia water, with constant shaking or stirring, and finally add the water, shaking until perfectly smooth.

This is recommended for sprains, bruises, lameness and congestion when due to exposure and fatigue, for painful conditions of the joints, muscles and limbs.

Directions: Apply freely three to five times a day, rubbing well with the palm of the hand. It may be applied with a piece of flannel or soft woolen fabric.

Always shake bottle before using.

WHITE LINIMENT CREAM OIL

Turpentine	20 oz.	Oil of Amber	1 oz.
Egg Yolks	12	Oil of Hemlock	1 oz.
Soft Soap	10 oz.	Oil of Sassafras	1 oz.
Stronger Ammonia Water	5 oz.	Oil of Thyme	1 oz.
Camphor Gum	4 oz.	Water	to make 80 oz.

Dissolve the soft soap in about 2 pints of warm water. Dissolve the camphor in the turpentine, using gentle heat if desired, and add the oils to this mixture.

Beat up the turpentine mixture with the egg yolks to a perfectly smooth mixture. Beat up the eggs first alone, then add the turpentine gradually and continue beating until the turpentine is all in and the mixture is perfectly smooth. Then gradually add the soap solution, continuing to mix until all the soap is in and a smooth emulsion is formed. Now add the ammonia, a little at a time, with constant stirring. Finally add gradually, with constant stirring, enough water to make the volume up to 80 fluid ounces.

This is recommended for sprains, muscular soreness, lameness and congestion when due to fatigue or exposure, and for painful conditions of the joints, muscles and limbs.

Directions: Apply with a piece of flannel or soft woolen fabric, three to five times a day, rubbing gently with the palm of the hand. Always shake the bottle before using.

ECZEMA AND POISON IVY REMEDY

Formula No. 1

a. Chlorothymol	$\frac{1}{4}$ oz.	Glycerol	4 fl. oz.
Benzoic Acid	$\frac{1}{2}$ oz.	95% Alcohol	12 fl. oz.
Salicylic Acid	$\frac{1}{2}$ oz.	Fluid Extract of	
Zinc Acetate	$\frac{1}{8}$ oz.	Witch Hazel	12 fl. oz.
Boric Acid	2 oz.	Oxyquinoline Base	$\frac{1}{2}$ oz.
Eucalyptol	$1\frac{1}{2}$ fl. oz.	Benzocaine	2 oz.
Methyl Salicylate	1 fl. oz.	Benadryl	
		Hydrochloride	4 oz.

Dissolve the last three drugs in the witch hazel extract; add the glycerol, and warm gently to about 40°C. Add the zinc acetate and boric acid and stir until dissolved. Dissolve the remaining five drugs in the alcohol and add the resulting solution to the witch hazel-glycerol solution.

b. Gum Tragacanth		Water	85 fl. oz.
Powder	2 oz.	95% Alcohol	12 fl. oz.
Glycerol	5 fl. oz.		

Stir the gum tragacanth into the glycerol, using a mortar and pestle. When homogeneous (about 5 minutes), pour into water, with mechanical stirring. Finally add the alcohol, with stirring.

To make the finished product, add *a* to *b* with mechanical stirring. A stainless steel or enameled pot should be adequate. The stirrer should be a "lightning" laboratory model or equivalent. Fifteen minutes' stirring should be sufficient.

Directions: Apply liberally to the affected area with a piece of soft gauze or cotton.

This is an antiseptic, analgesic preparation for the itching and burning of eczema, tetter, poison ivy, and insect bites. It is soothing to heat rashes and poison oak, beneficial in the treatment of foot ringworm, commonly called athlete's foot, and in many other irritated skin conditions; it also promotes healing of rough, chapped, or cracked skin.

Formula No. 2

a. Chlorothymol	60 gr.	Eucalyptol	$\frac{3}{4}$ fl. oz.
Benzoic Acid	120 gr.	Methyl Salicylate	$\frac{1}{2}$ oz.
Salicylic Acid	120 gr.	95% Alcohol	6 fl. oz.
Zinc Acetate	30 gr.	Glycerin	2 fl. oz.
Phenol	$\frac{1}{2}$ oz.	Distilled Extract of	
Boric Acid	1 oz.	Witch Hazel to make	1 pt.

Mix the chlorothymol, benzoic acid, salicylic acid, zinc acetate and boric acid with the glycerin. Dissolve the other ingredients in the alcohol. Add the alcohol mixture to the glycerin mixture and mix well. Then add the distilled extract of witch hazel.

b. Gum Tragacanth	2 oz.	Glycerin	5 fl. oz.
Alcohol	12 fl. oz.	Water	85 fl. oz.

Mix the water and glycerin and soak the tragacanth in this mixture until completely softened. Slowly add the alcohol, with constant stirring preferably in an emulsifying machine. Put *b* into the machine and run until the inside is well coated with the mixture. Then add *a* slowly, with the machine running, and continue to run until a perfectly even mixture is obtained.

To make the finished product mix 1 part of *a* with 3 parts of *b*.

This is an antiseptic for eczema, tetter, poison ivy and insect bites. It is soothing to heat rashes and poison oak, beneficial in the treatment of foot ringworm, commonly called athlete's foot, and in many other irritated skin conditions. It also promotes healing of rough, chapped or cracked skin.

Directions: Apply liberally to the affected area with a piece of soft gauze or cotton.

POISON IVY, OAK, ETC., LOTION

Formula No. 1

Tannic Acid	25.0 g.	Benzocaine	5.0 g.
Chlorobutanol		Benadryl Hydrochloride	10.0 g.
("Chloretone")	5.0 g.	Fluid Extract of	
Phenol	1.0 g.	Witch Hazel	60.0 cc.
Ammonium Alum	10.0 g.	Alcohol	240.0 cc.
Camphor	10.0 g.	Distilled Water	150.0 cc.
Menthol	2.5 g.		

Stir the tannic acid and ammonium alum with the water until dissolved and filter from any turbidity. Dissolve the benadryl hydrochloride in the witch hazel extract and add to the tannic acid-ammonium alum solution, with stirring. Dissolve all the other ingredients in the alcohol and add to the first mixture, with stirring. After standing overnight, it may be necessary to filter from accumulated sediment.

Directions: Apply as wet dressing or cotton soaked with the lotion. Repeat at intervals of 2 to 3 hours if required.

This is a refreshing soothing lotion for external use, for the relief of the itching and pain of acute ivy, sumac, or oak poisoning.

Caution: Avoid its use in the area of the eyes or on very sensitive skin. Do not use on irritated skin or if under medical treatment. Dilution with about 3 parts of water may be advisable when used on the face.

Formula No. 2

Sodium Hyposulfite	1	lb.	Powdered		
Sodium Bicarbonate	1½	lb.	Castile Soap	2	oz.
Phenol	1	fl. oz.	Alcohol	1	pt.
Cresol	1	fl. oz.	Water	7	pt.
Methyl Salicylate	3	fl. oz.			

Dissolve the powdered castile soap in 4 pints of the water. Add the phenol, cresol, and methyl salicylate to the soap solution, and beat until a good emulsion is formed. Dissolve the sodium hyposulphite and sodium bicarbonate in the remainder of the water and add this to the emulsion. When cold, add the alcohol. Let stand for a day and then strain through muslin.

Directions: Apply freely to the affected parts and cover with a soft cloth. In severe cases, saturate absorbant cotton with the liquid and apply over the parts affected, holding it in place with a loose bandage.

THROAT GARGLE ASTRINGENT

Tincture of Iron		Special Flavor	11½ dr.
Chloride	1 oz.	(Oil of Cassia	1 dr.)
Alcohol	1 oz.	(Oil of Peppermint	2 dr.)
Potassium Chlorate	280 gr.	(Oil of Cloves	1 dr.)
Boric Acid	120 gr.	(Vanillin	1 dr.)
Glycerin	1 oz.	(Benzaldehyde	10 drops)
Fluid Soluble Tolu	1 dr.	(Alcohol	2 oz.)
Mix thoroughly by agitation.			
Water to make 1 pt.			

Rub up the boric acid with the glycerin; then dissolve in 8 ounces of water in which the potassium chlorate has previously been dissolved; then add the tincture of iron chloride and mix well. Mix the flavoring oils with the alcohol, add this to the fluid tolu and then mix this with the other ingredients. Finally add the water.

The special flavoring may be replaced by an equal amount of spearmint flavoring prepared by replacing the oils by an equal amount of *oil of spearmint* in the 2 ounces of alcohol.

This is an antiseptic astringent solution which is pleasant to use and is an excellent remedy for sore throat, tonsilitis, quinsy, swollen tonsils, ulcerated conditions of the mouth, pharynx, and tonsils, and for minor irritations of the throat and mucous membranes due to colds.

Directions: Adults, dilute 1 teaspoonful with 2 teaspoonfuls of warm water. Use as gargle, swab, or in an atomizer. It may be used for children in the same way for minor throat irritations.

Caution: Observe Food and Drug notation pertaining to POTASSIUM CHLORATE (See Appendix).

ANTISEPTIC-ASTRINGENT SOLUTION

Formula No. 1

Zinc Chloride	8 gr.	Alcohol	1.6 oz.
Potassium Iodide	8 gr.	Water	to make 1 pt.
Menthol	77 gr.	Strawberry-Red	
Thymol	11 gr.	Certified Food Color	to color
Oil of Cinnamon, Cassia	77 min.		

Add the oils of cinnamon, menthol and thymol to the alcohol; dissolve the potassium iodide and zinc chloride in the water. Mix the two solutions and add color to secure the desired shade. Add some powdered talc and filter clear.

This is an efficient general-purpose antiseptic. Useful as a dressing for wounds, cuts, etc.; as a spray for sore throat, tonsillitis, quinsy; as an oral and nasal spray after dental extraction; as a dressing for scalds and burns; to relieve the itching of mosquito and insect bites, etc. It is also a refreshing aftershave and an efficient first-aid antiseptic. It will not irritate.

Directions: As a dressing for wounds, etc., apply freely in full strength, saturating a gauze pad; for tonsillitis and throat irritations, gargle or spray a 25% to full strength solution; after dental extraction, use 50% to full strength, holding in the mouth for a few minutes; for burns and scalds, apply pads saturated with full-strength solution; as a nasal spray, use full strength; as a gargle or nasal douche, use in 25% to 50% dilution. Use freely with a brush to clean dentures and bridges.

Formula No. 2

Zinc Chloride	7½ gr.	Saccharin	1 gr.
Formaldehyde	7½ min.	Oil of Cloves	2 min.
Boric Acid	30 gr.	Liquor Carmini (Na-	
Glycerin	½ oz.	tional Formulary)	70 min.
Menthol	15 gr.	Alcohol	307 min.
Oil of Ceylon		Water	to make 1 pt.
Cinnamon	30 min.		

Dissolve the boric acid, zinc chloride, glycerin, and formaldehyde in the water. Mix the menthol, oil of cinnamon, oil of cloves, saccharin, and the alcohol separately and add to the other mixture. Add the coloring and

filter through paper with the aid of powdered talc. Let stand for several weeks and filter again.

This is an effective antiseptic which may be used as a wash, spray, gargle, or application.

In oral hygiene, it may be used diluted with equal parts of water or full strength. After dental extractions, use full strength, then use diluted with 3 parts of water. As an application to minor wounds, use full strength. As a spray, use full strength; as a gargle, dilute with equal parts of water. When used as a dressing for cuts, wounds, burns, dilute with equal parts of water, saturate a pad, and apply. Use full strength as a cooling astringent after shaving.

MOUTHWASH*

Flavor oils may be solubilized in mouthwashes. Flavor oils can be used more effectively and large amounts of volatile solvents are not required. The following formula is a typical mouthwash, which may be varied in many ways, e.g., benzoic and boric acids may be substituted for the zinc chloride.

a. Flavor Oils	1.2 g.
(Cassia or Cinnamon Preferred)	
Tween 80	7.1 g.
b. Alcohol	15.0 g.
c. Zinc Chloride	0.9 g.
Formalin	0.9 g.
Saccharin	0.2 g.
Color	to suit
Water	to make 118.0 g.

Mix *a* thoroughly and add to *b* with thorough agitation; then add *c*.

* Courtesy of Atlas Powder Co.

ANTISEPTIC SOLUTION

Chlorthymol (U.S.P.)	6 dr.	Oil of Eucalyptus	4 fl. dr.
Cinnamic Acid	45 gr.	Acetic Ether	4 fl. dr.
Benzoic Acid	2¼ dr.	Glycerin	8 fl. oz.
Boric Acid	2 oz.	Alcohol	64 fl. oz.
Thymol	2¼ dr.	Talc	4 oz.
Menthol	2¼ dr.	Water	to make 5 gal.

Mix the boric acid with the glycerin to a smooth paste and dissolve this in 3 pints of water. Dissolve the other ingredients in 2 pints of the alcohol. Pour the aqueous solution into the alcoholic solution and allow to stand for 48 hours, with occasional agitation. Add the talc to the filter and run the first portions of the filtrate through the filter again until it becomes perfectly clear. Then add the remaining 2 pints of the alcohol and make up with water to 5 gallons. If not perfectly clear, filter again.

This antiseptic solution is recommended as a mouth wash, throat spray, gargle, and deodorant. It may also be used for minor skin irritations, cuts, scratches, and mosquito bites. As a mouth wash, throat spray, or gargle, it may be used diluted with an equal amount of water. As a deodorant, it may be used full strength.

SOLUBLE ALKALINE ANTISEPTIC POWDER

Powdered Borax	5 lb.	Oil of Eucalyptus	1 fl. oz.
Sodium Bicarbonate	1 $\frac{1}{4}$ lb.	Phenol Crystals	$\frac{1}{2}$ oz.
Sodium Chloride	4 oz.	Camphor Gum	$\frac{1}{2}$ oz.
Menthol Crystals	1 oz.	Zinc Sulfate	$\frac{3}{4}$ lb.
Thymol Crystals	1 oz.		

Mix the menthol, thymol, phenol, camphor, and oil of eucalyptus. Put into a mortar and rub well with about $\frac{1}{2}$ pound of the borax. Continue to add the borax, about $\frac{1}{2}$ pound at a time, until it is all in and thoroughly combined with the other ingredients. Then add the sodium bicarbonate, salt, and zinc sulfate. Mix well and pass through a sieve several times, mixing thoroughly after each sieving.

To make an antiseptic solution, dissolve a teaspoonful of the powder in 4 ounces of warm water.

Alkaline antiseptic powders are not adapted for use as dusting powder. If a dusting powder is wanted, omit the borax, sodium bicarbonate, and zinc sulfate and use the other ingredients with 6 $\frac{1}{2}$ pounds of boric acid, rubbing and mixing thoroughly together.

The powder made with boric acid may also be used for antiseptic solutions by dissolving a teaspoonful in $\frac{1}{2}$ pint of warm water. To facilitate solution, first add just enough water to the powder to form a smooth cream or paste, then stir in the remainder of the water. Boric acid has a tendency to float out in water and to dissolve very slowly. Mixing as directed will largely overcome this.

The boric acid base powder may be used by dusting freely on cuts, wounds, etc., and is adapted for human or veterinary use.

VAPORIZING CHEST OIL

Camphor Gum	1/2 oz.	Oil of Thyme	1/2 fl. oz.
Menthol	1/2 oz.	Oil of Eucalyptus	1 fl. oz.
Oil of Pine	1/2 fl. oz.	Capsicum	30 gr.
Oil of Mustard	30 min.	Turpentine to make	16 fl. oz.
Methyl Salicylate	2 fl. oz.	Color*	to suit
Oil of Peppermint	1/2 fl. oz.		

Dissolve the camphor and menthol in 8 fluid ounces of turpentine, heating gently on a water bath to complete solution. Macerate the capsicum in 2 ounces of turpentine for 3 days, with occasional stirring; then strain. Mix the extract of capsicum with the camphor and menthol solution and add the other ingredients, one at a time, mixing well after each addition.

This vaporizing oil can be used in chest and head colds by external application to the chest, throat, and back. It may also be used to relieve muscular soreness from exposure and dampness, rheumatic pains, sprains and strains of muscles and tendons.

Directions: For chest colds, apply freely over the chest and back as well as throat; leave the clothing loose around the neck; for head colds, inhale the vapors arising from the oil warmed in a spoon or from pouring a little in a basin of boiling water; for coughs due to colds, apply as for chest colds; for rheumatic pains, muscular lumbago, sprains and muscular strains, apply with massage after application of hot towels.

* Under the present law, only harmless colors can be used in medicinal and cosmetic formulas. Few oil-soluble colors have been certified and the use of oil-soluble red from alkanet or oil-soluble chlorophyll A is recommended. These can be obtained from Fritzsche Brothers, New York City. Just enough of either should be used to get a bright shade. A nice yellow color can be obtained by using a small quantity of ordinary butter color.

ANTISEPTIC BABY OIL

Olive Oil	4 oz.	Chlorothymol	30 gr.
White Mineral Oil		Oil of Rose	30 min.
	to make	24 oz.	

Mix the oils and dissolve the chlorothymol in the mixture; then add the oil of rose.

If wanted colored, add a mere trace of oil-soluble color from alkanet. Use just enough to give a pale pink color.

The proportion of oil of rose may be varied so as to get any desired degree of odor. One of the synthetic rose oils will give practically the same effect and be cheaper than true oil of rose.

This antiseptic oil may be used on babies to help overcome and prevent skin dryness, cracking and peeling; it protects against rashes and skin irritations. Adults may use it for the relief of sunburn, as a dressing for burns and scalds, for chapped, dry or cracked skin; it may be applied to the scalp before shampooing with a soft cloth or absorbent cotton to help loosen dandruff.

EYE DROPS

Ground Geranium		Boric Acid	3.84 oz.
Maculatum	1/4 oz.	Berberine Hydro-	
Ground Pilocarpus	1/4 oz.	chloride	17 gr.
Ground Xanthoxylum	1/4 oz.	Glycerin	12.8 oz.
Ground Podophyllum	1/4 oz.	Powdered Purified	
Powdered Rhubarb	1/4 oz.	Talc	1/2 oz.
Potassium Carbonate	1/4 oz.	Distilled Water	
			to make 1 gal.

Make an infusion by pouring on the first five drugs, which have previously been thoroughly mixed, 2 pints of boiling water and stir often till cool; then add the potassium carbonate and the purified talc. Filter clear through paper. Add to the clear filtrate the boric acid, glycerin, berberine hydrochloride and water, adding in rotation effecting solution each time. Filter again through paper.

This is a soothing and cleansing lotion for relieving minor irritations of the eye due to dust, wind, and exposure to smoke and sunlight, and for tired, overworked eyes.

Directions: Tip the head well back then place a few drops in the eyes with a dropper, every hour or two as necessary. Keep the dropper clean by washing in hot water.

EYE LOTION

Formula No. 1

Aqueous Fluid Extract		Glycerin	1/4 oz.
of Hydrastis	2 dr.	Distilled Water	to make 1 pt.
Boric Acid	2 dr.		

Rub up the boric acid with the glycerin and dissolve this mixture in the water. Then add the extract of hydrastis, mix thoroughly, and filter.

The uses and directions given under the previous formula are applicable to this formula also.

Formula No. 2

Powdered Copper Sulfate	8 gr.	Powdered Zinc Sulfate	24 gr.
Powdered Boric Acid	4 dr.	Distilled Water	to make 24 oz.

Dissolve and filter.

Uses and directions as under *Eye Drops*.

NOSE OIL

Menthol	38 gr.	Oil of Pine Pumillius	38 min.
Camphor	38 gr.	Chloretone	30 gr.
Eucalptol	38 min.	Oil of Thuja Occidentalis	60 min.
Oil of Cinnamon	15 min.	Ephedrine Alkaloid	70 gr.
		Liquid Petrolatum	1 pt.

Mix the menthol, camphor and chloretone with 8 fluid ounces of the liquid petrolatum and heat on a water bath until dissolved. Add the other ingredients and finally more liquid petrolatum to make 1 pint. Color to suit with oil-soluble chlorophyl. Store in dark bottles.

This oil is effective for the relief of head colds and for the treatment of minor irritations of the nasal tract.

Directions: Apply a few drops at a time. Spray with an oil atomizer if preferred.

Caution: Individuals suffering from heart diseases, high blood pressure, thyroid troubles or diabetes should use preparations containing ephedrine only on competent advice, since their frequent or continued use may cause nervousness, restlessness, or sleeplessness.

CORN REMEDY

Tincture of Iodine	$\frac{1}{8}$ fl. oz.	Anesthesin	35 gr.
Salicylic Acid	$\frac{1}{2}$ oz.	Flexible Collodion	
Glacial Acetic Acid	60 min.	to make	4 fl. oz.
Menthol	30 gr.		

Mix the salicylic acid, menthol, and anesthesin with 3 fl. ounces of flexible collodion. When dissolved, add the tincture of iodine and glacial acetic acid and the balance of collodion.

Directions: Apply the liquid over the entire surface of the corn, but not on the smooth skin surrounding the corn. Repeat this treatment for five consecutive nights without disturbing the corn. Then soak the feet in water as hot as can be borne with comfort. The corn can be removed. If it does not come off, repeat the treatment, first rubbing the corn with a coarse cloth. Callouses and bunions may be treated by the same method.

Do not irritate or cut corns in any way, as there is danger of infection from this source. Keep the bottle tightly corked.

MANGE REMEDY

Oil of Tar (U.S.P.)	2 lb.	Crude Petroleum Oil	
Oil of Cade	2 oz.		to make 1 gal.
Precipitated Sulfur	10 dr.		

Mix in the order listed, but rub up the sulfur with a little crude oil to a smooth paste before adding to the whole.

It is sometimes best to mix all but the sulfur and let stand for several weeks to allow a tarry sediment to settle and then carefully decant or syphon off the clear supernatant liquid. This tarry sediment is probably due to impurities.

The crude oil should be a trifle more dense than kerosene but dark brown in color and clear with a just a slight *bluish bloom* and having the odor of kerosene just slightly empyromatic.

While not originally intended for human use, in many cases this remedy has been found excellent for softening and beautifying the hair, to help revive the growth of hair, in keeping the hair clean, removing loose dandruff scales and stimulating the scalp.

When used on the scalp, steam the head with a hot towel, then apply the mange remedy, rubbing in well with the finger tips. Wash the hair and scalp thoroughly. Repeat this application once or twice a week.

This is a valuable and harmless remedy for many skin diseases on animals. It is also recommended for fleas and vermin and to improve the growth of hair.

Directions for animals: Wash the affected parts thoroughly with castile soap and water, dry, and then apply remedy all over the area by dabbing on with a little cotton or rubbing in on the surrounding hair or fur. It is not necessary to cover as it will not harm the animals should they lick it.

TOOTHACHE JELLY

Phenol	8 oz.	Creosote	1	oz.
Menthol	60 gr.	Anesthesin	256	gr.
Oil of Cloves	1 oz.	Chloroform	$\frac{1}{2}$	oz.
Thymol	60 gr.	Colodion	16	fl. oz.

Rub up the phenol, thymol, and menthol in a mortar. Add the oil of cloves, creosote and chloroform. Then add the anesthesin to this mixture. When perfectly mixed add the collodion and mix well.

Directions: Use a small quantity on cotton inserting it in the cavity of the tooth, or better apply a small quantity of the jelly to the cavity and cover with cotton.

Caution: Avoid swallowing or getting on tongue, lips, skin, etc.

ANTISEPTIC AND DEODORANT FOOT POWDER

Salicylic Acid	1/2 oz.	Benzoic Acid	1 dr.
Boric Acid	2 oz.	Talc	to make 1 lb.
Chlorthymol	20 gr.		

Have all ingredients in fine powder form and mix intimately.

This is a soothing, antiseptic, and deodorant footpowder for tired, perspiring, and tender feet. It helps eliminate foot odor.

It is dusted or sprinkled into the shoe, or the feet may be dusted thoroughly in the morning with the powder.

CALLOUS SKIN REMOVER

Stearicic acid	40 oz.	Salicylic Acid	50 oz.
Diglycol Laurate	10 oz.		

Warm together until dissolved. Pour at lowest possible temperature. Apply to the callous or hard skin and allow to remain overnight. Do not repeat the treatment for seven days. It penetrates better than the usual preparations for skin peeling. Do not use on tender skin.

MOSQUITO REPELLENT LOTION

Powdered Tragacanth	1/2 oz.	Oil of Eucalyptus	1/2 fl. oz.
Water	3 pt.	Oil of Pennyroyal	1/4 fl. oz.
Tincture of Benzoin	1/2 fl. oz.	Alcohol	4 fl. oz.
Oil of Citronella	1/2 fl. oz.		

Mix the tragacanth and water until it forms a perfectly smooth mucilage. Mix the oils, tincture of benzoin and alcohol together and add, all at once, to the tragacanth mucilage, mixing thoroughly.

If a mentholated product is wanted, 1/2 ounce of menthol may be added. If this is used, increase the quantity of alcohol to 1/2 pint, dissolve the menthol in the alcohol, and add the tincture and oils. Then combine with the tragacanth mucilage as directed before,

Apply as any toilet lotion, rubbing it well into the skin of the face, neck, arms, or any exposed part. Shake the bottle before applying.

MOSQUITO REPELLENT OIL

Oil of Citronella	16 oz.	Creolin	4 dr.
Oil of Cedar Leaf	1 oz.	Mineral Oil	1 gal.
Oil of Pennyroyal	2 dr.		

Mix thoroughly.

Apply a few drops on the hands, face, and other exposed parts of the body and spread lightly over the skin.

MOSQUITO REPELLENT

Oil of Citronella	6 oz.	Kerosene (Coal Oil)	4 oz.
Turpentine	6 oz.	Phenol Crystals (U.S.P.)	10 gr.

Dissolve the phenol in the kerosene, add the other ingredients, and mix thoroughly.

Directions: Rub a few drops on the face, hands, and other exposed parts of the body.

To keep mosquitoes out of the room, darken the room; saturate blotting paper or cotton with this liquid and place it near the door.

VETERINARY REMEDIES

The observance of basic sanitary principles, prevention, diagnosis and rational treatment of disease, combined with sound judgment in feeding, contributes greatly to the security of the wealth represented by livestock, whether a few animals on the small farm or herds on large ranches. To be profitable, livestock must be healthy, adequately fed, and intelligently cared for.

The rational use of good veterinary remedies simplifies animal care. Although there is no great contrast between the principles of diagnosis of human and animal ailments and treatments, it is obvious that the lack of the faculty of speech constitutes a handicap in the detection of animal ailments. It is also obvious that the treatment of more serious animal ailments should be in the hands of those trained in their diagnosis and treatments.

This chapter is devoted to products for relieving minor ailments of livestock and treating their minor accidents.

UDDER OINTMENT FOR COWS

White		Oil of	
Petrolatum	9 lb.	Eucalyptus	1½ fl. dr. (5.6 cc.)
Anhydrous		Oil of	
Lanolin	12 oz.	Sassafras	1½ fl. dr. (5.6 cc.)
Camphor	1½ oz.	Oil of Pine	1 fl. dr. (3.8 cc.)
Menthol	¾ oz.	Oil of Thyme	1 fl. dr. (3.8 cc.)
Phenol		Oil of Tur-	
Crystals	2½ dr. (4½ g.)	pentine	1 fl. dr. (3.8 cc.)

Melt the petrolatum in an ointment mill of suitable size; add the other ingredients, and stir at 50–60°C. until thoroughly mixed. Let cool to approximately 40°C. and add:

Oxyquinoline Base	2.5 dr. (4.5 g.)
Sulfathiazole*	12.5 dr. (22.5 g.)
Tyrothricin (or Bacitracin) *	1.5 dr. (2.7 g.)

Continue stirring until homogeneous, and fill into small jars or collapsible metal tubes.

Directions: Bathe the udder with an abundance of warm water, dry, and apply the ointment liberally. Massage thoroughly and allow a portion to remain on the udder.

This is an antiseptic ointment for massage application in treatment of minor congestions of the udder, scratches, cuts, chapped teats, etc. Its use decreases the dangers of external infections, helps relieve soreness, and induces rapid healing. Effective as a general wound dressing. Observe the cautions pertaining to the use of sulfa drugs.

* These drugs may be omitted to prepare a less medicated ointment.

UDDER LINIMENT

Thymol	0.5 oz. (14 g.)	Oil of	
Menthol	0.5 oz. (14 g.)	Sassafras	0.1 oz. (2.8 cc.)
Camphor		Oil of	
Liniment	2.0 oz.	Wormwood	0.1 oz. (2.8 cc.)
Methyl		Lanolin	0.5 oz. (14 g.)
Salicylate	3.0 oz.	Triethanolamine	8.0 cc.
Oil of Pine	0.3 oz. (7.4 cc.)	Tincture of	
Oil of Thuja	0.2 oz. (5.6 cc.)	Green Soap	
		to make	1 pt.

Use U.S.P. Chemicals.

Add the thymol and menthol to the methyl salicylate. Mix well when in solution. Add the oil of pine, thuja, sassafras and wormwood. Add the camphor liniment.

Warm about 8 ounces of the tincture green soap and add the triethanolamine. Stir well. Melt the lanolin and add to the mixture of green soap and triethanolamine. Mix well to emulsify the lanolin. When a smooth emulsion is obtained, add the mixture first made with adequate stirring. The mixture may be warmed slightly and shaken in a stoppered bottle.

Directions: Bathe the udder several times with warm water, let dry, and then apply this liniment. Shake the bottle before using. After each milking, strip thoroughly each quarter, massaging with the liniment at the same time. This liniment may be removed with warm water.

MASTITIS OINTMENT FOR COWS

Penicillin	100,000 units per 3.75 g. tube
Dihydrostreptomycin	55 mg. per 3.75 g. tube
Tyrothricin or Bacitracin	5,000 units per 3.75 g. tube
Sulfathiazole*	1 g. per 3.75 g. tube

Inject one ¼-ounce tube in each quarter per treatment.

To 100 grams of U.S.P. peanut or sesame oil add 2 grams of U.S.P. aluminum stearate. Warm, mix until in solution, and cool. Take 2 grams of the oil-stearate mixture and work in the penicillin, dihydrostreptomycin, tyrothricin, and sulfathiazole. To this mixture, add sufficient of the stearate-oil to give 3.75 grams.

This is suitable for teat instillation prevention and treatment of bovine mastitis caused by some forms of organisms. Its action is enhanced by the addition of sulfathiazole. It may also be used for milk goats.

Directions for Use for Mastitis: After thoroughly washing the udder and teats as well as the hands, dry and milk each quarter completely. A mild antiseptic or rubbing alcohol may be applied to the teats before using this ointment. Inject one ¼-ounce tube into each quarter. Massage the udder gently to stimulate absorption of the ointment. This treatment may be repeated if necessary.

* This may be omitted if desired.

INTESTINAL ASTRINGENT POWDER FOR CALVES, COWS, ETC.

To make 100 pounds of powder, mix the following in a powder mill, or by rolling in a drum equipped with baffle plates:

	lb.		lb.
Colloidal Kaolin	30	Salol	5
Precipitated Calcium Carbonate	5	Fine Pectin Powder	10

Mix intimately, for example, by rolling or tumbling in a drum. Then add the other ingredients and mix thoroughly.

	lb.		lb.
Sulfathiazole	5	Finely Powdered	
Bismuth Subgallate	20	Gentian Root	1
Bismuth Subcarbonate	10	Finely Powdered	
Tannic Acid	10	Anise Seed	1
Finely Powdered			
Ginger Root	3		

This powder may be used as such or may be pressed into "boluses" each weighing about 100 grains. One of these will be about the equivalent of a tablespoon dose of the powder. One tablespoonful of the powder will weigh 100 to 105 grains, the amount of a single dose.

Directions:

For Calves: One tablespoonful which should be stirred up with a pint of milk (or linseed gruel) and given once every 4 hours. If the animal will not drink the milk, the same dose in "bolus" form should be administered.

For Cows: Give 2 tablespoonfuls twice daily dry on the tongue or in feed.

For Horses: Same dose as for cows, but give three times daily in feed or in gruel.

For Colts: One tablespoonful three times a day in 8 ounces of sweet milk.

For Lambs and Pigs: One teaspoonful three times daily in feed.

This is an intestinal antiseptic astringent powder for treatment of simple diarrhea in livestock.

Toxic reactions may follow the use of this powder which contains sulfathiazole. Should unfavorable reactions develop, discontinue its use and give large quantities of water.

SCOURS POWDER

	oz.		oz.
Bismuth Subnitrate	10	Starch	30
Salol	10	Powdered Ginger	2
Powdered Licorice Root	5	Powdered Prepared Chalk	40
Powdered Anise Seed	3		

Have all in fine powder form and mix well by running through a sieve or powder mixer.

This is an effective remedy for the prevention and relief of calf scours, diarrhea, dysentery, and scours in livestock.

Directions: For calves, give 1 tablespoonful in milk three times a day. If the milk is refused, give dry on tongue. For colts, give 1 tablespoonful in $\frac{1}{2}$ pint of sweet milk until bowel movement is normal. For cows, give 2 tablespoonfuls three times a day in feed or on the tongue; for horses, give the same amount as for cows, in 1 pint of wheat gruel; for pigs and lambs, give 1 tablespoonful dry on the tongue three times a day.

COW TONIC

	oz.		oz.
Powdered Black Haw Bark	1	Powdered Garget Root	5
Powdered Elecampane	1	Powdered Boneset	5
Powdered Uva Ursi	1	Powdered Nux Vomica	1
Powdered Spearmint Herb	1	Powdered Asafoetida	1
Powdered Damiana Leaves	1	Potassium Nitrate	5
Powdered African		Iron Carbonate	3
Ginger Root	2	Epsom Salts	70
Powdered Capsicum	1	Diluent	100
Powdered Aletris	1	Finely ground flaxseed meal,	
Powdered Cinchona Bark	1	middlings, kaffir corn or other	
Powdered Fenugreek	20	grains or alfalfa meal may be	
Powdered Witch Hazel		used.	
Leaves	20		

Mix thoroughly by sieving or any other convenient method.

This specialty is recommended for purifying the blood, correcting stomach disorders, improving the appetite, as a general tonic, alterative, and regulator.

As a tonic and alterative for cows off feed, give 1 tablespoonful three times a day in feed. As a tonic when recovering from illness, give 2 tablespoonfuls three times a day in feed. As a general tonic for the herd, give 1 tablespoonful twice a day.

HOG TONIC AND WORM EXPELLER

	oz.		oz.
Powdered Gentian	5	Sodium Sulfate	60
Powdered Spigelia	5	Sodium Chloride	5
Powdered Chenopodium	5	Sodium Bicarbonate	20
Powdered Santonica	10	Sodium Hyposulfite	1
Powdered African Ginger	3	Iron Oxide	1
Powdered Areca Nuts	5	Iron Sulfate	1
Powdered Capsicum	1	Diluent	86
Powdered Aloes	5	Finely ground flaxseed meal,	
Powdered Myrrh	1	middlings, kaffir corn, or other	
Powdered Willow Charcoal	10	grains, or alfalfa meal may be	
Sulfur	10	used.	
Sodium Phosphate	5		

Mix thoroughly by sieving or other method.

This preparation is suitable for strengthening and invigorating the system of hogs. It aids in expelling intestinal worms, purifying the blood, stimulating the appetite and promoting general body tone.

The usual quantity given at each feeding is 1 tablespoonful, for each grown hog twice a day in feed.

Directions as a Worm Expeller: Give no food or drink for 24 hours before beginning treatment. Give morning and evening for 3 days in bran or shorts mixed with milk or water. For hogs weighing 200 pounds give 4 tablespoonfuls in about 3 pints of bran or shorts and milk or water mixture; give no other food and only sufficient clean water to relieve thirst. For hogs weighing 100 pounds, give 2 tablespoonfuls; for hogs weighing 35 to 50 pounds, give 1 tablespoonful as above. After treating for 3 days, put back on full feed and give 1 tablespoonful of tonic in feed.

HORSE TONIC

	oz.		oz.
Powdered Black Haw	1	Powdered Fennel	2
Powdered Aloes	5	Powdered Glycyrrhiza	1
Powdered Calendula	1	Powdered Gentian	1
Powdered Hydrastis	1/2	Powdered Capsicum	1
Powdered Juniper Berries	2	Powdered Areca Nuts	1
Powdered Coriander	1/2	Powdered Santonica	1
Powdered Arrowroot		Powdered African Ginger	1
(Maranta)	1	Powdered Sodium Sulfate	5
Powdered Calumba		Diluents	198
(Colombo)	1	Finely ground flaxseed meal,	
Powdered Elecampane	1	middlings, kaffir corn or other	
Powdered Podophyllum	1	grains or alfalfa meal may be	
Powdered Fenugreek	5	used.	

Mix thoroughly.

This mixture will help keep the system in a healthy condition, aid digestion, purify the blood, keep horses free from worms, act on the kidneys and bladder and as a laxative, alterative tonic.

The ordinary dose for horses in good condition is 1 tablespoonful three times a day in feed; for unthrifty horses double the dose; working horses, race horses, and brood mares may be given the same dose; yearling colts may be given 1 teaspoonful three times a day in feed; 2-year-old colts, give 1 tablespoonful.

STOCK TONIC AND CONDITIONER POWDER

	oz.		oz.
Powdered Gentian	1	Powdered Cinchona Bark	10
Powdered African Ginger	1	Powdered Sulfur	10
Powdered Elecampane	1	Powdered Sodium	
Powdered Mandrake Root	1	Chloride	10
Powdered Cascara Bark	1	Powdered Sodium	
Powdered Fenugreek	5	Bicarbonate	20
Powdered Worm Seed	5	Powdered Iron Sulfate	5
Powdered Anise Seed	1½	Powdered Willow	
Powdered Pumpkin Seed	2	Charcoal	20
Powdered Areca Nuts	5	Diluents	136
Powdered Juniper Berries	5	Finely ground middlings, kaffir	
Powdered Capsicum	1	corn, flaxseed meal, or other	
Powdered Coriander	1½	ground grains may be used.	

Mix thoroughly.

This preparation will help prevent diseases in livestock and poultry, by aiding digestion, promoting assimilation, and purifying the blood.

Directions: For horses in fairly good condition, give 1 or 2 tablespoonfuls a day in feed; when not thriving, give two tablespoonfuls twice a day. Colts may be given in proportion to age. For cattle, 1 or 2 tablespoonfuls two or three times a day. Hogs may be given the same amount as cattle, in proportion to size in slop. Sheep may be given about one fourth as much as cattle. For poultry, give 1 or 2 tablespoonfuls for each twenty-five fowls in feed.

CATTLE TONIC

	oz.		oz.
Powdered Cinchona	1	Powdered Iron Sulfate	2
Powdered Frangula	5	Powdered Sulfur	10
Powdered Quassia	1	Powdered Sodium	
Powdered Cassia	1	Chloride	10
Powdered Caraway	1½	Powdered Magnesium	
Powdered Coriander	1½	Sulfate	20
Powdered Yellow		Powdered Sodium	
Calisaya	1	Bicarbonate	15
Powdered Sanguinaria	1	Powdered Willow Charcoal	10
Powdered Capsicum	1	Diluents	150
Powdered Uva Ursi	5	Finely ground flaxseed meal,	
Powdered Gentian	5	middlings, kaffir corn or other	
Powdered Fenugreek	5	ground grains may be used.	
Powdered Anise Seed	1		

Mix thoroughly.

This tonic is prepared especially for cattle and sheep. It will help prevent diseases by improving the appetite, promoting assimilation, and purifying the blood.

General Directions: Two tablespoonfuls in the feed, twice a day for cattle; cows may be given 1 to 2 tablespoonfuls twice a day; calves, 1 tablespoonful; sheep, if in good condition, 1 tablespoonful twice a day in feed; if not thriving, give 2 tablespoonfuls.

POULTRY TONIC

	lb.		lb.
Powdered Ginger	5	Powdered Sodium	
Powdered Sulfur	10	Hypo-Sulfite	5
Powdered Capsicum	2	Powdered Nux Vomica	1
Powdered Iron Carbonate	1	Powdered Iron Sulfate	10
Powdered Willow Charcoal	8	Precipitated Calcium	
Powdered Asafoetida	1	Carbonate	60
Powdered Sodium Chloride	3	Ground Bone	40
Powdered Sodium Sulfate	10	Ground Oyster Shells	100

Mix intimately.

Directions: Use 1 tablespoonful in the feed for twenty hens.

VETERINARY LAXATIVE TONIC POWDER

	oz.		oz.
Powdered Anise Seed	10	Powdered Poke Root	5
Powdered Licorice Root	15	Powdered Jalap	40
Powdered Nux Vomica	10	Starch	15
Powdered Burdock Root	5		

Mix thoroughly in a suitable powder mixer.

This tonic laxative powder will help overcome constipation and bloating in livestock.

The dose for a cow or bull is 1 teaspoonful every 3 hours dry on the tongue. This dose should be continued until the bowels move naturally; calves under one year old may be given one quarter to one half of regular dose.

VETERINARY COLIC REMEDY

Ground Physostigma	1½ oz.	Spirits of	
Ground Capsicum	1½ oz.	Turpentine	4 fl. oz. 160 min.

Moisten the ground drugs with some of the turpentine and pack in a small percolator. Cover and allow to stand for several days. Percolate, and pass enough spirits of turpentine through the percolator to give 4 fluid ounces and 160 minims of percolate. To this percolate add:

Benzyl Benzoate	70 min.	Camphor Gum	¼ oz.
Etherial Oil	10 min.	Special Oil	
Chloroform	60 min.	Compound*	9 fl. oz. 408 min.
Oil of Peppermint	10 min.		

Mix thoroughly.

This effective sedative and intestinal antiseptic is recommended for the relief of cramps and colic which occurs in veterinary practice.

Dose: Two ounces by syringe or 1 ounce by capsule. It may be repeated every ½ hour if necessary. The dose for colts and yearlings is 1 or 2 teaspoonfuls.

* SPECIAL OIL COMPOUND

	oz.		oz.
Camphor Gum	1	Oil of Origanum	1
Menthol	⅛	Oil of Anise	1
Artificial Oil of Sassafras	2	Spirits of Turpentine	
Oil of Pine (Pumillius)	2	to make one pt.	
Oil of Erigeron	1		

Mix thoroughly.

VETERINARY FEVER AND DISTEMPER REMEDY

Ground Belladonna		Potassium Nitrate	328 gr.
Leaves	160 gr.	Acetanilide	32 gr.
Ground Aconite Root	160 gr.	Aromatic Spirit of	
Ground Bloodroot	160 gr.	Ammonia	60 min.
Acetic Acid (U.S.P.)	120 min.	Alcohol	240 min.
Potassium Chlorate	120 gr.	Water	to make 1 pt.

Place the first three ground drugs in a suitable vessel. Then mix the acetic acid, aromatic spirit of ammonia, alcohol, and water and pour over the mixed drugs, after the effervescence has ceased, and macerate at least 3 or 4 days. Then pass through a filter, adding enough water through the filter to collect 15½ ounces of filtrate. In this clear filtrate, dissolve the potassium nitrate, potassium chlorate, and acetanilide. Finally, add the water.

This is an excellent remedy for the treatment and prevention of shipping fever, distemper, influenza, and strangles in veterinary practice.

Directions: One ounce every hour for the first 6 hours; then every 3 hours until checked; then three times a day.

VETERINARY ANTISEPTIC BLOOD CLOTTING POWDER

	oz.		oz.
Tannic Acid Powder	2.5	Monsel Salt	2.00
Thymol Iodide or Iodoform	0.1	Sulfathiazole*	0.05
Potassium Alum	2.5	Powdered Zinc Oxide	3.50
Boric Acid Powder	2.0	Talc	5.00

U.S.P. grade chemicals should be used. The ingredients should be mixed in the order given in a good mixing device. When mixed they should be stored in a clean, dry, airtight container.

Directions: Apply by dusting over the affected area liberally, making sure that it is entirely covered.

It assists in arresting the flow of blood in cuts, wounds, dehorning, castrating, etc., where there is minor hemorrhage.

* May be omitted if desired.

VETERINARY HEALING POWDER

Dried Alum Powder	8 oz.	Liquefied Phenol	
Powdered Zinc Oxide	5½ oz.	(U.S.P.)	1 dr.
Finest Powder of Boric Acid	2 oz.	Powdered Camphor	1 dr.

Place the boric acid in a mortar and add the phenol in divided portions, rubbing well until thoroughly mixed. Then add the remaining ingredients and mix well again. Finally, pass through a fine sieve two or three times, mixing well after each sieving.

Put up in tin, sifting-top boxes of the talcum-powder box type.

This astringent, antiseptic, and stimulating dry dressing effects rapid healing. It is indicated in the treatment of such conditions as suppurative surfaces, skin lesions, moist eczema, burns, scalds, and as a dry dressing for wounds.

It is used by sprinkling over the parts to be treated, after having thoroughly washed them with castile soap and water. It may also be used without the washing when more convenient.

VETERINARY COUGH AND COLD CAPSULES

	oz.		oz.
Bloodroot	$\frac{1}{2}$	Lobelia	$\frac{1}{4}$
Polopody Root	2	Cloves	$\frac{1}{4}$
Skunk Cabbage	1	Ammonium Chloride	1
Pleurisy Root	1	Oil of Tar	$\frac{1}{4}$
Black Cohash	1	Oil of Eucalyptus	$\frac{1}{4}$
Elecampane	1	Oil of Sassafras	$\frac{1}{4}$
Beth Root	1	Terpin Hydrate	$\frac{1}{4}$
Licorice Root	1	Syrupy Glucose	
Ginger	1	to make a mass, about	9
Black Pepper	1		

Have all drugs finely powdered and mix well, add the glucose, and knead into a stiff mass. If too stiff, add glycerine till a good mass is made. Roll out and cut into 176 pieces which should fit into half-ounce veterinary gelatin capsules.

Dose: In ordinary cases, one capsule every three hours. In bad cases, one capsule an hour may be given until about four or five have been consumed, then once in 3 hours.

SPAVIN TREATMENT

Oil of Origanum	1 fl. oz.	Camphor Gum	2 oz.
Oil of Spike	1 fl. oz.	Tincture of	
Oil of Rosemary	1 fl. oz.	Cantharides	$\frac{1}{2}$ fl. oz.
Spirits of		Tincture of Iodine	1 fl. oz.
Turpentine	1 fl. oz.	Alcohol to make	1 pt.

Dissolve the camphor gum in 8 fluid ounces of alcohol. Add the oils and spirits of turpentine. Mix well. Then add the tinctures and the balance of alcohol.

Directions: Rub freely into the affected part twice a day. If it causes blistering, stop its use for a few days and grease the part with lard or petrolatum. It is well to clip the hair from the part to be treated before applying the medicine as this will tend to prevent blistering. Do not cover with a bandage.

HEALING AND SKIN OINTMENT

Phenol Crystals	4 dr.	Gum Turpentine	1 oz.
Salicylic Acid	4 dr.	Pine Tar	4 oz.
Ichthyol	4 dr.	Oil of Sassafras	4 dr.
Zinc Oxide	4 oz.	Petrolatum	20 oz.
Precipitated Sulfur	4 oz.		

Melt the gum turpentine with the petrolatum, add the tar and ichthyol, and mix well. Add the phenol and oil of sassafras when cooled a little. Then gradually work in the sulfur, salicylic acid, and zinc oxide. If made on a large scale, the ointment should be ground in an ointment mill to insure a complete mixture and smooth texture.

This ointment may be used for various forms of skin troubles.

VETERINARY SKIN OINTMENT

Calomel Powder	3.2 oz.	Liquefied Carbolic Acid	1.6 oz.
Powdered Extract of		Zinc Oxide	2.0 lb.
Stramonium Leaves	2.4 oz.	Amber Petrolatum	7.5 lb.

Heat the petrolatum to melt it, then continue at very low heat just enough to keep it liquid. Add the extract of stramonium and the calomel to the zinc oxide and mix well before adding to the melted petrolatum. Stir well. Then pass into another container through a fine sieve or double layers of gauze to remove coarse particles, using a wooden spoon to rub the ointment through the sieve. Add the carbolic acid last to the finished, strained product and stir well.

This is an excellent skin ointment. It may be used in the treatment of itch, eczema, scab, ringworm, dandruff, scurf, and mange.

VETERINARY ABSORBENT APPLICATION

Iodine	3.5	Water	26.0
Alcohol	45.0	Acetic Ether	1.0
Acetic Acid (U.S.P.)	24.0		

This is prepared by simply mixing together and shaking until the iodine is completely dissolved.

This helps to remove unnatural enlargements on the body or limbs of livestock to reduce enlarged glands and enlargements due to kicks, bruises, etc.

Directions: Apply once daily with a small brush. If the parts become very much blistered, discontinue and apply lard for a few days, then repeat application.

Caution: For external use only.

LINIMENT

Phenol (U.S.P.)	1/2 oz.	Oil of Hemlock	2 oz.
Camphor Gum	1 oz.	Turpentine	8 oz.
Oil of Sassafras	1 oz.	Raw Linseed Oil	1 pt.
Distilled Oil of Pine	2 oz.	Kerosene (Coal Oil)	2 pt.
Oil of Origanum	2 oz.		

Dissolve the camphor in the kerosene, add the phenol, and mix well; then add the remaining ingredients, mixing well after each addition.

For Veterinary Use: For sprains, lameness, ringbone, stiff joints, etc., apply and rub thoroughly into the parts three times a day; for wounds or sores apply the liniment with a soft cloth after having washed the parts well with warm water and castile soap.

For Human Use: For rheumatic pains, muscular lumbago, lameness, sprains and strains, chilblains, etc., apply freely to the affected area, rubbing in well. In cases of extreme rheumatic pains, cover with warm flannel after applying. Should it cause smarting, remove the flannel at once.

ANTISEPTIC HEALING OIL COMPOUND

Oil of Tar	2 dr.	Oil of Sassafras	2 dr.
Oil of Origanum	2 dr.	Crystals Phenol	2 dr.
Oil of Hemlock	2 dr.	Raw Linseed Oil	to make 1 pt.

Dissolve the phenol in the oils of origanum, hemlock, and sassafras which have previously been mixed. Add the oil of tar and raw linseed oil. Mix thoroughly.

This antiseptic oil is an excellent application for scratches, wounds, barb-wire cuts, galls, burns, sore shoulders, etc. It is equally effective for human and animal use and is to be applied freely with a soft cloth or cotton swab after washing the area with warm water and castile soap.

VETERINARY ANTISEPTIC DISINFECTANT GERMICIDE

Oleic Acid	30	Spirits of Turpentine	5
Ammonia Water (U.S.P.)	15	Water	8
Eucalyptol	1	Dark-Red Cresol (U.S.P.)	40
Camphor	1		

Mix the first and second ingredients in a large bottle by shaking. Mix the eucalyptol, camphor and spirits of turpentine separately and add to the first. Then add the cresol and then the water and mix well by shaking vigorously.

This disinfectant, antiseptic and germicide can be used in and about the home, on the farm, around stables, dairies, etc. In proper dilutions, it may be used as an antiseptic in the treatment of wounds, cuts, etc., on animals.

Directions: As a disinfectant, use 1 part to 50 parts of water. For cuts, wounds, lacerations, fistula, barb-wire cuts, etc., wash and dress

with a 5% solution. For mange, wash daily with a 5% solution. For fleas, lice, and parasites, wash frequently with a 1% solution.

HOOF OINTMENT

Petrolatum	5 lb.	Phenol Crystals	2 oz.
Anhydrous Lanolin	1 lb.	Camphor Gum	2 oz.
Rectified Oil of Tar	3 fl. oz.		

Rub up the phenol with the camphor until completely mixed and liquefied. Mix the rectified oil of tar with this mixture. Melt the petrolatum and lanolin together and add the mixture of phenol, camphor, and oil of tar, mixing thoroughly.

This hoof ointment is recommended for softening hardened hoofs, preventing quarter cracks and preserve the hoof in its natural healthy condition.

Directions: Wash the hoof clean, wipe dry, and apply the ointment. Rub it well into the hoof, then wipe off any excess, and polish with a dry cloth.

HOOF OIL

Neatsfoot Oil	1 pt.	Crude Petroleum Oil	1 pt.
Raw Linseed Oil	1 pt.	Distilled Oil of Pine	2 dr.
Pine Tar	1 pt.		

Mix thoroughly.

This is suitable for the prevention and relief of contracted hoofs and to overcome certain ailments of the feet such as corn, founder and soreness, dry hoofs and help to keep them soft and elastic.

Directions: Clean the hoof and apply as suggested in the previous formula for hoof ointment.

VETERINARY WORM POWDER

Santonica (Levant		Powdered Ginger	2 oz.
Worm Seed)	8 oz.	Corn Meal	to make 1 lb.
Powdered Dried Iron			
Sulfate	1½ oz.		

Mix intimately.

Dose: For a horse or cow, 1 to 2 ounces, given in the evening with a mash feed. Follow the next day with a full dose (1 to 2 pounds) of sodium sulfate; other animals, in proportion. Do not use this worm powder for hogs.

HEAVE POWDER

	oz.		oz.
Powdered Lobelia Leaves	4	Powdered Sodium Sulfate	8
Powdered Skunk Cabbage	2	Potassium Iodide	8
Powdered Elecampane	8		

Mix intimately.

Dose: Give 2 teaspoonfuls night and morning. Sprinkle all hay feed with water and dampen the feed. Give but a small quantity of hay at a feed and avoid all dusty and moldy hay.

SHEEP DIP

Creosote Oil	7½ gal.	Granulated Caustic Soda	3 lb.
Crude Carbolic Acid	1½ gal.	Water	1¾ gal.
Rosin	20 lb.		

Dissolve the caustic soda in the water by heating. When dissolved and at the boiling point, add the rosin in small pieces, about 4 pounds at a time, continuing to cook until all the rosin is in and completely saponified. The mixture will froth strongly during this process and a large enough kettle should be used to prevent frothing over. Keep the froth whipped down while cooking. Mix the creosote oil and crude carbolic acid and stir the hot rosin soap into the mixture, continuing to heat gently, with constant stirring, until it forms a perfect mixture.

For use, dilute 1 gallon of dip with 70 gallons of water.

FLY PREVENTATIVE FOR HORSES AND CATTLE

Pyrethrum Powder	1½ lb.	Cottonseed Oil	1 gal.
Kerosene	1 gal.		

Macerate the powder in the kerosene for a week, with frequent stirring. Then strain and add the cottonseed oil.

This product contains ¾ pound of pyrethrum powder in each gallon, this being the legal strength. It is used as any fly preventative, with a sprayer.

CHICK FOOD, STARTER, AND DEVELOPER

	lb.		lb.
Hulled Oats	10	Rape	1¼
Corn meal	50	Caraway	⅓
Wheat Middlings	20	Gentian	⅓
Millet	2	Ginger	¼

Black Pepper	1/4	Epsom Salts	2
Bone Meal	2	Dried Buttermilk Powder	10
Shell Meal	2		

Have all ingredients finely ground before mixing. Mix thoroughly.

Feed as any standard chick food, giving no more than will be cleaned up at each feeding.

CHICK FOOD, STARTER, AND DEVELOPER

	lb.		lb.
Granulated Wheat	20	Lime Grit	4 1/2
Granulated Milo Maize	5	Charcoal	2
Granulated Kaffir	35	Dried Buttermilk	5
Millet	2	Ground Meat Scraps	
Clover	1 1/2	(50% Protein)	10
Oat Meal	10	Salt	1

Have all ingredients in fine granulated form and mix well.

This formula should meet the following requirements:

	%		%
Protein	12.5	Fiber	5.0
Fat	2.5	Carbohydrates	55.0

The law requires the statement of composition, as above, and also that the feed measures up to the statements made.

Feed as any standard chick food, just enough so they clean up all food before the next meal; no more.

POULTRY LICE KILLER

Crude Cresol or		Commercial Rectified	
Carbolic Acid	1 gal.	Tar Oil	2 pt.
Naphthalene Flakes	1 1/2 lb.	Crude Petroleum	28 gal.
Kerosene	2 gal.		

Mix the crude cresol or carbolic acid with the kerosene and add the naphthalene flakes. Let stand for several days, with frequent agitation. To this mixture, add the rectified tar oil, mix well and then stir in the crude petroleum. Let stand for a few days, with frequent stirring, and put up in bottles or screw-top cans.

Directions: Paint the drop boards, roosts, nest boxes, and all cracks and crevices of the poultry house with the mixture. Apply in the evening before the fowls enter the roost. Repeat once in 2 or 3 weeks. For scaly legs, paint the legs of the fowls with the liquid.

FLEA POWDER FOR DOGS AND CATS

	oz.		oz.
Rotenone	1	Kaolin	96½
Derris Resin	2½		

Mix the rotenone and derris resin, then gradually add the kaolin (about 5 pounds at a time), mixing thoroughly. Complete the mixing by passing through a sieve several times, stirring well after each sieving. In large quantities, this is best made in a mixing and sifting machine.

Directions: Put a small quantity on the back of the animal. For bed-bugs, dust on the mattress and where insects are frequent; for plant lice, dust on the plants.

SUPPLEMENTARY VETERINARY FORMULAS

Several formulas which appear in the chapter on "Medicinal Preparations" are worthy of mention here, as being equally well adapted to animal use as to human use. Particularly important are the following:

	Page		Page
Antiseptic Healing Ointment, Formula No. 5	218	Healing Antiseptic Liquid, Formulas No. 1 and 2	234
Antiseptic Healing Balm	230	Dry Powder Dressing	
Antiseptic, Healing, Analgescic Oil Compound	231	Formulas No. 1 and 2	234-5
Antiseptic Healing Oil	232	Healing Antiseptic Powder	236
Healing-Astringent	232	Compound Liniment	244
Antiseptic Healing Liquid	233	Mange Remedy	256

CARBONATED BEVERAGES, GINGER ALES, BEVERAGE EXTRACTS, FRUIT OILS, ETC.

The general idea of today to *pause and sip for refreshment* might well be used to describe a custom which is characteristic not only of American people but extends to all corners of the earth where thirst exists.

CARBONATED BEVERAGES

Acids play an important part in the make-up of all carbonated drinks. They balance the flavor and enhance it. Most fruits contain an acid of some kind, but the oils of these fruits do not carry the acid, so that some acid must be used in working these oils up into drinks to get a pleasing effect.

Getting a satisfactory dry ginger ale has been a very troublesome problem. Citric acid and lime juice will not do it. Citric acid is sour but not *dry*. Lime juice possesses some of the characteristics of *dryness* but has a musty taste. Lime juice has a tendency to spoil if used in excess.

The best substance for obtaining the so-called *dry* effect in ginger ales is acid phosphate, of which there are two kinds, that is, the animal and the mineral. The mineral acid is rough and tends to develop undue acidity on standing. The proper kind to use is the bone or animal phosphate, as it dries smoother and does not develop undue acidity or roughness nor does it increase in acidity.

The acid phosphate may replace citric acid in preparing syrups, using just enough to give the desired acidity and dryness. Five fluid ounces of Horsford's acid phosphate are equivalent in acidity to one fluid ounce of citric acid.

Although it is not a rule which is always adhered to, ginger ale extracts are frequently classified as, one-, two-, three-, or four-ounce extracts,

according to the amount of extract used to the gallon, together with citric acid solution or phosphoric acid and syrup to make the finished flavoring syrup. However, enough of any particular extract may be used to a gallon of syrup to secure the exact strength desired. This also applies to the amount of acid used. In making an *extra dry* product, more acid is used.

COMPOUND FRUIT FLAVOR

Concord-Grape-Flavored Artificial Fruit Oil			15 oz.
Strawberry-Flavored Artificial Fruit Oil			15 oz.
Apricot-Flavored Artificial Fruit Oil			10 oz.
Cherry-Flavored Oil Compound			3 oz.
(Heliotropin	7½	oz.)
(Solution of Jasmin Concrete			
1 Part in 10 of Alcohol	3	oz.)
(Solution of Aldehyde C ₁₄			
1 Part in 20 of Alcohol	7½	dr.)
(Cyclamic Aldehyde	2	fl. dr.)
(Benzaldehyde	2	fl. oz.)
(Vanillin Crystals	10½	oz.)
(Fluid Extract of Rhatany	4	fl. oz. 3 fl. dr.)	
(Oil of Cloves	2¼	dr.)
(Oil of Cinnamon, Ceylon	1¼	dr.)
(Cherry Juice	100	fl. oz.)
(Alcohol	100	oz.)
Citric Acid Solution (4 lb. Acid to 2 gal. Water)			2 gal.

Use 2 ounces or more, according to the flavor desired, of this extract to each gallon of syrup and ½ ounce or more of flavored syrup to each 8-ounce bottle of carbonated water.

KOLA COMPOUND

Formula No. 1

Vanillin	4	gr.	Fluid Extract of	
Oil of Lemon	44	min.	Chestnut Leaves	1½ oz.
Oil of Orange	22	min.	Glycerin	32 oz.
Oil of Limes	132	min.	Phosphoric Acid	½ oz.
Oil of Nutmeg	10	min.	Citric Acid	12½ oz.
Oil of Neroli	22	min.	Alcohol	1 pt.
Caffeine Alkaloid	1½	oz.	Water	36¾ oz.
Fluid Extract of Kola	2¾	oz.	Powdered Talc	24 oz.
			Caramel	to color

Dissolve the oils in the alcohol, add the vanillin and the fluid extracts, and finally the water in which the caffeine and acids have been dissolved. Add the talc, let stand for a day with occasional shaking, then filter clear.

Use 3 to 4 ounces of this extract to 1 gallon of simple syrup; then use 1 ounce of the flavored syrup to an 8 ounce bottle of carbonated water.

Formula No. 2

(Lemon Compound)

Increase the oil of lemon to 120 minims in Formula No. 1, leaving the other ingredients as stated. More oil of lemon may be used if a more decided lemon effect is desired.

Formula No. 3

(Orange Compound)

Omit the oil of lemon in Formula No. 1 and increase the oil of sweet orange to 120 minims. Still more may be used for a more decided orange effect.

Formula No. 4

(Cherry, Grape, Raspberry, Pineapple, Loganberry Compound)

To Formula No. 1, add 1 ounce of the respective fruit oil.

KOLA-GINGER ALE COMPOUND

Fluid Extract of Kola	1/2 oz.
Ginger-Ale Extract	1 oz.
Strawberry-Flavored Artificial Fruit Oil	2 dr.
Orange-Lemon Compound Flavor	2 dr.
(Bottlers' Soluble Orange Extract	8 fl. oz.)
(Bottlers' Soluble Lemon Extract	8 fl. oz.)
(Amyl Nitrite	3 fl. oz.)
50% Citric Acid Solution	1 oz.
Acidproof Caramel	to color

Mix thoroughly.

Use 1 to 2 ounces of extract to 1 gallon of syrup. Then use about 1 ounce of flavored syrup to an 8-ounce bottle of carbonated water.

COLA EXTRACT

- | | | | |
|-----------------------------|-------|---------------|--------|
| <i>a.</i> Caffeine Alkaloid | 5 lb. | Boiling Water | 5 gal. |
|-----------------------------|-------|---------------|--------|

Put the caffeine into the water after it has begun to boil, then stir, and continue boiling until dissolved. Remove from the fire. Use a porcelain or enameled kettle in preparing this solution.

- | | | | |
|---------------------------|--------|--------------------|------------|
| <i>b.</i> Vanilla Extract | 14 oz. | Lead-Free | |
| Oil of Lemon | 14 oz. | Oil of Cassia | 21 fl. oz. |
| Oil of Sweet Orange | 7 oz. | Oil of Nutmeg | 10 fl. dr. |
| Re-Distilled Oil of Limes | 4 oz. | True Oil of Neroli | 3 fl. dr. |
| | | Alcohol | 5½ gal. |

Mix thoroughly and let stand at least 3 weeks before using as this improves greatly with age.

- | | | | |
|--------------------------|--------|-------------------|-----------------|
| c. Cold Water | 6 gal. | Syrupy Phosphoric | |
| Pure Glycerin | 5 gal. | Acid | 10 lb. |
| Best Acidproof Caramel | 4 lb. | Pure or Imitation | |
| Soluble Fluid Extract of | | Lime Juice | 2 gal. |
| Chestnut Leaves | 1 gal. | b. | 1¾ gal. |
| Soluble Extract of | | Cold Water | to make 28 gal. |
| Kola Nuts | 1 gal. | | |

Add these to *a* in the order listed, stirring well after each addition.

Mix thoroughly and filter clear.

To facilitate filtration the caramel may be omitted in mixing and dissolved in the filtrate. In this case, only enough water is added to make 24 instead of 28 gallons, thus allowing for the caramel which is afterward added.

The finished extract improves with age, as this brings about a perfect blending of the various ingredients. After mixing the extract with the syrup, the mixture should be allowed to stand about 1 week before using.

This formula makes a high-grade cola beverage extract, to be used in the proportion of 1 gallon to 10 gallons of syrup, or 1 pint to 10 pints of syrup.

MINT-KOLA COMPOUND

Put 5 gallons of water into an enameled or porcelain kettle and bring to a boil. Stir in 5 pounds of caffeine alkaloid and continue to boil and stir until entirely dissolved.

Add to this:

Cold Water	6 gal.	Syrupy Phosphoric Acid	10 lb.
Glycerin	5 gal.	Lime Juice	2 gal.
Fluid Extract of		Special Flavor*	1¾ gal.
Kola Nuts	1 gal.	Cold Water to make	33 gal.

Filter and add 2 gallons of caramel to the filtrate.

Mix and dissolve. Keep in closely stoppered containers in a cold dark place for use as needed.

For bottling, add 1 pint of this extract to 1 gallon of syrup. Use 1 ounce of this flavored syrup to an 8-ounce bottle, filling up with carbonated water on the carbonating machine.

Like all other compounded flavors, this extract improves greatly with age. The special flavor should be allowed to stand for at least 3 weeks before using. The older it gets the better it becomes. The finished extract also improves with age. After mixing with the syrup let it stand a week before using.

*SPECIAL FLAVOR

95% Alcohol	5½ gal.	Distilled Oil of Limes	4 fl. oz.
Extract of Vanilla	14 fl. oz.	Oil of Cassia	21 fl. oz.
Oil of Lemon	14 fl. oz.	Oil of Nutmeg	1¼ fl. oz.
Oil of Sweet Orange	7 fl. oz.	Oil of Peppermint	6 fl. oz.

CARBONATED BEVERAGE EXTRACT

Fluid Extract of Kola	2 oz.	Ginger-Ale Extract	
Fluid Extract of		(3-Ounce Extract)	¾ oz.
Chestnut Leaves	4 oz.	Alcohol	8 oz.
Bottlers' Soluble		Sugar	6 lb.
Orange Extract	3 oz.	Water	3 pt.
Lime Juice	1½ pt.	Caramel	to color

Mix the fluid extracts and add the alcohol and orange extract. Then add the ginger-ale extract. Mix the lime juice with the water and slowly add this to the alcoholic mixture. Let stand a few hours, then filter, using a little pumice or talc in the filter.

Use 1 to 1½ ounces of this syrup to an 8-ounce bottle of carbonated water. More flavoring may be used if a more pronounced flavor is desired.

GRAPE COMPOUND

Grape-Flavored Artificial Fruit Oil	2½ lb.
Lemon Compound Flavor	5½ oz.

(Bottlers' Soluble Lemon Extract	5 oz.)
(Bottlers' Pear Flavor	5 oz.)
(Bottlers' Imitation Apple Flavor	5 oz.)
Glacial Acetic Acid	1 lb.
Acidproof Caramel	2 oz.
Syrup	6 gal.

Mix thoroughly.

Use about an ounce of flavored syrup to an 8 ounce bottle of carbonated water.

GINGER-ALE EXTRACT

Oil of Ginger	24 fl. oz.	Oil of Rose	
Oil of Capsicum	6 fl. oz.	Geranium	1½ fl. dr.
Oil of Sweet Orange	12 fl. oz.	Oil of Neroli	10 drops
Oil of Lemon	12 fl. oz.	Oil of Cloves	1½ fl. dr.
Oil of Limes	30 fl. oz.	95% Alcohol	5½ gal.
Oil of Cinnamon	1½ fl. dr.	Water	6½ gal.

Add the oils to the alcohol in the order given in the formula, mixing well after each addition. Slowly add the water which has been warmed to about 110°F. Mix well, cover tightly, and let stand for 48 hours, with occasional stirring. Then filter through a good grade of filter paper, using a little pumice or talc as a clearing medium in the filter.

The *bouquet* may be varied almost to any degree by varying the proportions of oils of cinnamon, rose geranium, neroli and cloves. If desired, other essential oils may be used to give the particular bouquet wanted.

Geraniol or artificial oil of rose may be substituted for the oil of rose geranium, if desired. This gives a slightly more delicate flavor.

To prepare the syrup for bottling, take:

Ginger Ale Extract	2 oz.	50% Citric Acid	
Syrup	1 gal.	Solution*	1½-2 oz.
		Caramel	½-¾ oz.

Bottle in the usual way, carbonating to the desired pressure.

The syrup should be about 29° Bé. This can be achieved by dissolving 5 pounds of granulated sugar in 5 pints of hot water. Some bottlers make their syrups on the basis of 10 pounds of sugar to 1 gallon of water.

For a dry ginger ale, use 2 ounces of citric acid solution to the gallon of syrup. For a sweeter product, reduce the amount.

* The 50% solution of citric acid is made by dissolving citric acid crystals in their own weight of water.

SPECIAL GINGER-ALE FLAVOR

a. Terpeneless Oil of Lemon	6 dr.	Oil of Nutmeg	3 oz.
Terpeneless Oil of Sweet Orange	1½ dr.	Oil of Limes, Terpeneless	1 oz.
Oil of Rose	15 drops	Oil of Ginger	1¼ oz.
95% Alcohol	13 pt.	Fluid Extract of Capsicum	1 pt.
Fluid Extract of Ginger	10 pt.	Oenanthic Ether	30 drops
50% Alcohol	14 pt.	33⅓% Alcohol	6½ gal.

Dissolve the oils in the 95% alcohol and add the ginger extract. Mix the capsicum extract with the 50% alcohol and add this to the previous solution. Add the oenanthic ether, then add the 33⅓% alcohol. Add one large scoop of powdered pumice stone and one large scoop of powdered carbonate of magnesia, churn for 30 minutes, and filter clear and bright.

To prepare the 6½ gallons of 33⅓% alcohol, mix 17 pints, 5 ounces of alcohol with 34 pints, 11 ounces of water.

b. a	96 oz.	Caramel Color	to suit
50% Citric Acid Solution	17 oz.		

Mix thoroughly.

This makes a *two-ounce* extract.

GINGER-ALE EXTRACT

	oz.		oz.
a. Vanilla-Bean Extract	16	Soluble Nutmeg Extract	4
Imitation Strawberry Flavor for Bottlers	4	Soluble Lemon Extract	8
Imitation Pineapple Flavor for Bottlers	4	Soluble Orange Extract	4
		Soluble Lime Extract	4
b. Oleoresin of Ginger	12 oz.	Water	2¼ gal.
Alcohol	2¾ gal.		

Mix *a* thoroughly.

Mix *b*, let stand 2 or 3 days, and then filter clear. To 2 gallons of *a*, add 5 gallons of *b*. Use these *mixed flavors* as follows:

Mixed Flavors	2 oz.	Caramel	¼ oz.
50% Citric Acid Solution	1 oz.	Syrup (25°Bé.) to make	1 gal.

Use $1\frac{1}{2}$ to 2 ounces of this extract to each 8-ounce bottle. Carbonate at 65 pounds.

For a stronger product, use 2 ounces of oleoresin of capsicum along with the oleoresin of ginger.

GINGER-ALE EXTRACT

Formula No. 1

a. Oleoresin of Ginger	2 oz.	Carbonate of Magnesia	2 oz.
Oleoresin of Capsicum	1 dr.	95% Alcohol	50 oz.
Oil of Jamaica Ginger	2 dr.	Water	75 oz.

Put the magnesia, oleoresins, and oil into a mortar, mix to a paste, add the alcohol and dissolve thoroughly. Then add the water. Churn 1 to 2 hours; then filter. Add 2 ounces of caramel.

Prepare the ginger-ale syrup as follows:

a	15 oz.	50% Citric Acid Solution	10 oz.
Soluble Lemon Extract	3 oz.	Simple Syrup	5 gal.
Extract of Distilled		Sugar Color	4 oz.
Oil of Limes	3 oz.		

Mix by thorough agitation.

Use $1\frac{1}{2}$ ounces of this syrup to each bottle. Carbonate at 60 pounds pressure.

For *extra dry* increase the citric acid solution to 12 ounces.

The product may be pasteurized by bringing the temperature to 140°F . and letting stand at this temperature for 20 minutes.

Formula No. 2

a. Oil of Ginger	100 oz.	Soluble Orange Extract	$4\frac{3}{4}$ gal.
White Oil of Ginger		Soluble Lemon Extract	$1\frac{1}{2}$ gal.
(Dodge & Olcott Co.)	8 oz.	Extract of Limes*	3 pt.
Alcohol	11 gal.	Boiling Water	14 gal.

Mix. Churn 3 hours. Let settle and filter through heavy French filter paper.

Prepare the syrup as follows:

a	4 oz.	Syrup	1 gal.
Citric Acid	2 oz.	Caramel	$\frac{1}{4}$ oz.

Mix thoroughly.

* EXTRACT OF LIMES

Oil of Limes	6 oz.	Water	½ gal.
Alcohol	½ gal.		

Dissolve the oil in the alcohol and slowly add the water, with constant stirring.

Formula No. 3

Terpeneless Lemon Oil	5 dr.	Soluble Fluid	
Terpeneless Orange Oil	1 dr.	Extract of	
Oil of Nutmeg	3 oz.	Ginger	9 pt.
Terpeneless Oil of Limes	6 dr.	Fluid Extract of	
Oil of Ginger	1½ oz.	Capsicum	1 pt.
Oil of Rose	15 drops	95% Alcohol	13 pt.
Oenanthic		50% Alcohol	3 gal. 5 pt.
Ether	30 drops		

Mix the oils with the 95% alcohol and add the oenanthic ether. Mix the fluid extracts with the 50% alcohol and then mix the two solutions. Churn for 30 minutes; then filter, using powdered pumice in the filter to clear. Add caramel to suit.

This makes a ONE-OUNCE extract, that is, use 1 ounce to 1 gallon of syrup with sufficient 50% citric acid solution.

GINGER-ALE FLAVOR

Oleoresin of Ginger	24 oz.	Oil of Cassia	1½ dr.
Oleoresin of Capsicum	6 oz.	Oil of Rose	30 drops
Oil of Limes	36 oz.	Oil of Cloves	1½ dr.
Oil of Orange	24 oz.	Alcohol	5½ gal.
Oil of Lemon	32 oz.	Water	6½ gal.

Mix the oils and oleoresins with the alcohol and add the water. Churn 2 to 3 hours and filter clear.

This is a TWO-OUNCE extract.

GINGER-ALE ESSENCE

Oleoresin of Ginger	8 oz.	Soluble Lemon Extract	4 pt.
Oleoresin of Capsicum	2 oz.	Tincture of Capsicum	1 pt.
Rectified Oil of Ginger	2 oz.	Tincture of	
Reunion Oil of Geranium	2 dr.	Ginger (U.S.P.)	12 pt.
Oil of Canada Snakeroot	2 dr.	Artificial Oil of	
Vanillin	3 dr.	Raspberry	2 oz.

Vanilla Extract	1 oz.	Caramel	4 oz.
Alcohol	1¾ gal.	Red Certified Food Color	
Water	1½ gal.	Stock Solution	8 oz.

Mix as directed in the preceding formulas.

This produces a TWO-OUNCE extract.

GINGER-ALE EXTRACT

Formula No. 1

Oleoresin of Ginger	2 oz.	Alcohol	5½ gal.
Oleoresin of Capsicum	5½ oz.	Oil of Cloves	1½ dr.
Lemon Oil	36 oz.	Lead-Free Oil of Cassia	1½ oz.
Orange Oil	12 oz.	Water	3 gal.
Rose Oil*	½ dr.		

Mix the oils and oleoresins with the alcohol, add the water (hot), and churn for 2 hours. Then filter.

This is a TWO-OUNCE extract, that is, 2 ounces are used to 1 gallon of syrup with sufficient 50% citric acid solution.

* A good synthetic oil may be used.

Formula No. 2

Oleoresin of Ginger	16 oz.	Oil of Cloves	8 oz.
Oleoresin of Capsicum	26 oz.	Oil of Mace	6 oz.
Orange Oil	10 oz.	Alcohol	5 gal.
Lemon Oil	3 pt.	Water	5 gal.

Mix the oils and oleoresins with the alcohol and add the water. Churn 3 hours and filter clear.

This makes a ONE-OUNCE extract.

ORANGE CIDER COMPOUND

Oil of Sweet Orange	1¾ lb.	Dried Orange Peel	2 lb.
Oil of Bitter Orange	¼ lb.		

Extract with 75% Alcohol to give 1 gallon. Color with brilliant orange color.*

To make up the orange drink, dissolve 1½ ounces of citric acid and 3½ pounds of granulated sugar in 1 quart of water. When solution is complete, add 1 ounce of *a* and 1 dram of orange color* and mix thoroughly.

To serve, dilute 1 part of the syrup so obtained with 7 to 10 parts of iced water. Keep the undiluted syrup cold.

All the citrus oils, such as lemon and orange, have a tendency to develop a terpene flavor when in solution with acids. For this reason, no more of the syrup should be made up at once than can be used in a short time.

For cloudy orange drinks, add a little of the "cloud solution" as follows:

Powdered Castile Soap	1 dr.	Alcohol	3 dr.
Tincture of Benzoin	15 min.	Glycerin	1 dr.

Dissolve the soap in the alcohol, add the tincture, then mix with the glycerin. Use 1 ounce to 8 gallons of syrup, or $\frac{1}{8}$ ounce to 1 gallon.

* ORANGE COLOR

Brilliant Orange Certified Color	1 oz.	Water	16 oz.
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Mix and dissolve.

ROOT-BEER EXTRACT

a. Oil of Sweet Birch, or Oil of Wintergreen	15 fl. oz.	Lead-Free Oil of Cassia	$\frac{1}{8}$ fl. oz.
Oil of Cloves	$\frac{3}{4}$ fl. oz.	Alcohol	15 pt.
Oil of Sassafras	$\frac{3}{8}$ fl. oz.	Vanilla Extract	6 pt.
Oil of Lemon	$1\frac{1}{2}$ fl. oz.	Caramel	4 oz.

Dissolve the oils in the alcohol. Mix the caramel with the vanilla extract. Then pour the colored vanilla extract into the alcoholic solution. A brown precipitate will form which acts as a clarifying agent. Let stand for 3 hours, stirring often; then filter. Store in a cool dark place for use as needed in making up the root-beer extract according to the following formula.

a	2 pt.	Caramel	6 oz.
Alcohol	1 pt.	Citric Acid	2 oz.
Water	5 pt.		

Mix *a* with the alcohol; then gradually add 4 pints of water, mixing thoroughly. Dissolve the citric acid in the remaining water and add this to the solution. Then dissolve the caramel in the mixture. Mix well and bottle.

This is used in the proportion of 3 fluid ounces to 5 gallons of root beer. More or less citric acid may be used, so as to get any desired degree of acidity in the finished product.

Either a pure vanilla extract from the bean, or an artificial vanilla flavor may be used.

For home-made root beer, dissolve 4 pounds of granulated sugar in 5 gallons of lukewarm water. Then add the contents of one bottle (3 fluid ounces) of root-beer extract and mix well. Dissolve $\frac{1}{2}$ cake of Fleischman's yeast in a cup of lukewarm water and stir this into the mixture. Bottle at once. Keep in a warm place for 12 hours, then store in the cellar. Chill the bottles thoroughly before opening.

The color of the finished root beer will depend entirely on the amount of caramel used in preparing the extract. More or less than the amount stated may be used, so as to get a finished product of any desired color.

SOLUBLE LEMON EXTRACT

Strictly Fresh		Alcohol	64 fl. oz.
Oil of Lemon	13 $\frac{1}{2}$ fl. oz.	Orange-Flower Water	4 oz.
Oil of Sweet Orange	$\frac{1}{2}$ fl. oz.	Hot Water	64 fl. oz.
Glycerin	6 fl. oz.		

Mix the oil of lemon and oil of sweet orange and add to 3 $\frac{3}{4}$ pints (60 fluid ounces) of the alcohol in a $\frac{1}{2}$ -gallon bottle. Shake for 15 minutes. Add the glycerine and shake for 10 minutes.

Pour 64 fluid ounces of hot water into a warm two-gallon bottle. Add the mixture of alcohol, oils, and glycerin. Shake or roll constantly for at least 2 hours, not allowing the ingredients to separate. Manufacturers use a mechanical mixer or churn in making these extracts. Finally let stand for 24 hours.

Introduce a rubber tube and syphon the extract from beneath the undissolved oil. Add the orange-flower water and the 4 ounces of alcohol left over from the original 64 ounces.

Use great care in separating the extract from the undissolved oil, for if small globules of oil are left in the extract it will not work up clear. If at all cloudy after separation, filter through powdered pumice until perfectly clear.

The addition of $\frac{1}{2}$ ounce of oil of sweet orange gives a characteristic bouquet to the extract. If preferred, this may be omitted and 14 fluid ounces of oil of lemon used, instead of the 13 $\frac{1}{2}$ ounces specified. The orange-flower water also adds wonderfully to the delicacy of the product.

The oil that remains undissolved in making this extract has consider-

able flavoring value and, while not adapted for further use in the manufacture of soluble extracts, can be disposed of to candy makers or bakers. It usually sells at about one half the price of the natural unwashed oil.

Use 1 ounce of this extract to 1 gallon of syrup. Add 2 ounces of citric acid solution. This makes up the flavored syrup for bottlers' use.

A soluble orange extract may be prepared according to this formula by substituting 13½ ounces of oil of orange for the oil of lemon, using 14 ounces in all.

ARTIFICIAL APRICOT OIL

Oil of Bitter Almonds (Free from Prussic Acid)		True Fruit	
	4 dr.	Apricot Extract*	30 oz.
Amyl Acetate	4 oz.	Solution of Peach	
Butyric Ether	4 oz.	Aldehyde (1:20)	4 dr.
Peach Flavoring	24 oz.	Alcohol	130 oz.
Heliotropine	4 dr.	Glycerin	10 oz.
Solution of Jasmin		Water	30 oz.
Concrete (1:20)	4 dr.		

Dissolve the heliotropine in the alcohol, add the other ingredients, one at a time, mixing well after each addition. Finally add the glycerin and the water. Let stand for 24 hours, stirring occasionally, and then filter clear.

One half ounce of citral may be added to the formula if desired.

The solutions of jasmin concrete and peach aldehyde (1:20) are made by mixing 1 ounce of jasmin concrete with 20 ounces of alcohol, and 1 ounce of peach aldehyde with 20 ounces of alcohol.

Keep well covered to avoid evaporation of the alcohol.

This artificial apricot oil is used by bottlers in the proportion of 1 ounce to a gallon of syrup.

* APRICOT EXTRACT

Dried Apricots	50 lb.	Alcohol	8½ gal.
Water	8½ gal.		

Mix 4½ gallons of the alcohol and 4½ gallons of the water, pour over the dried fruit, and let stand for 3 days. Drain overnight the third day. Then pour the remainder of the alcohol and water on the dried fruit, let stand for 2 days, drain, and press out the fruit. The yield should be 17 gallons.

This extract can be made in any quantity desired and stored for use as needed.

ARTIFICIAL PEACH OIL

Oil of Peach Blossoms*	50 fl. oz.	Fluid Extract of Valerian	14 fl. oz.
Alcohol	400 fl. oz.	Solution of Cinnamic Alcohol (1 to 10)	45 fl. oz.
Artificial Maple Flavor	20 fl. oz.	Solution of Aldehyde C ₁₄ (1 to 100)	60 fl. oz.
Fluid Extract of Rhatany	90 fl. oz.	Ionone	1 fl. oz.
Amyl Valerianate Absolute	2½ fl. oz.	Solution of True Oil of Rose (1 to 10)	1 fl. oz.
True Oil of Bitter Almonds	5 fl. oz.	Solution of Amyl Butyrate (1 to 10)	2 fl. oz.
Extract of Cocoa or Essence**	160 fl. oz.	Solution of Jasmine Concrete (1 to 10)	1 fl. oz.
Vanillin Crystals	2½ oz.	Heliotropine Crystals	5 oz.
True-Fruit Peach Syrup	200 fl. oz.		

Dissolve the vanillin and heliotropine in the alcohol; then add the other ingredients, one at a time, mixing well after each addition. Add the peach syrup last. This is the ordinary peach syrup used at soda fountains.

* OIL OF PEACH BLOSSOMS

Special Oil of Neroli†	1 lb.	Vanillin Crystals	64 oz.
Genuine Cognac Oil, White	14 oz.	Artificial Apple Oil‡	16 oz.
Absolute Oenanthic Ether	14 oz.	Absolute Acetic Ether	96 oz.
Pure Peach Aldehyde		Absolute Valerianic Ether	16 oz.
Aldehyde C ₁₄	4 oz.	Alcohol	240 oz.

Mix the alcohol, acetic ether, and valerianic ether and dissolve the vanillin in the mixture. Then add the other substances, one at a time, mixing well after each addition.

**EXTRACT OF COCOA

a. Roasted and Powdered Cocoa Beans	2 lb.	Alcohol	4 pt.
		Water	4 pt.
b. Cocoa Essence	6 pt.	Water	3 pt.
True Vanilla Extract	4 pt.	Caramel (Sugar Color)	1 oz.
Alcohol	3 pt.		

Extract the powdered cocoa beans with the alcohol and water, on a water-bath, fitted with a reflux condenser, for 8 hours. After cooling, filter and press out the mass, then distill under low pressure in a vacuum still. Mix *a* thoroughly with *b*.

The following simpler method does not yield as fine a product:

Baker's Cocoa	1 lb.	Alcohol	½ gal.
Glycerin	4 oz.	Hot Water	½ gal.

Mix thoroughly, then filter through pumice and add:

Vanilla Extract	2 pt.
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A pure vanilla extract is best, but artificial vanilla may also be used for a cheaper product.

Color to suit with caramel.

It is well to let the mixture of cocoa with glycerin, alcohol, and water stand covered until nearly cold before filtering, as this gives a stronger flavor, though the mixture does not filter quite as rapidly as when hot.

† SPECIAL OIL OF NEROLI

	oz.		oz.
Best Oil Petitgrain	45	Terpeneless Oil of Orange	4½
Geraniol	148	Solution of Nerolin Crystals	
Methyl Anthranilate	34	(1 to 7 in Alcohol)	3½
Linalool	30	Cardamon Oil	1¾
Geranyl Acetate	70	Solution of Gum Benzoin	
Terpinyl Acetate	70	(1 to 5 in Benzyl	
Linalyl Acetate	64	Benzoate)	27
Terpeneless Oil of Lemon	2½	Solution of Artificial Musk	
Phenylethyl Alcohol	22	(1 to 10 in Benzyl	
Solution of Scatol (1 to		Benzoate)	50
100 in Alcohol)	13		

Mix well.

‡ ARTIFICIAL APPLE OIL

Amyl Butyrate	16 oz.	Peach Flavor	5 fl. dr.
Amyl Valerianate	32 oz.	Alcohol	5 pt.
Butyric Ether	16 oz.	Certified Yellow Food Color	to suit
Lemon Oil	1½ oz.		

Mix thoroughly.

The peach flavor used in preparing the artificial apple oil is a solution of aldehyde C₁₄ (1 to 100) in alcohol.

ARTIFICIAL CONCORD-GRAPE OIL

	oz.		oz.
Benzyl Butyrate	10½	Fluid Extract of Valerian	3
Methyl Anthranilate	4½	Acetic Ether	16
Methyl Salicylate		Concord-Grape Juice	125
Natural or True	½	Glycerin	25
Amyl Valerianate	½	95% Alcohol	150

Add the ingredients, in the order given, to the alcohol. Then add the grape juice and mix well. Finally add the glycerin and mix again. Let stand, closely stoppered or covered, for a day and filter.

Color with certified grape-shade food coloring.

One to three ounces of isobutyl and from ½ to 1 ounce of cinnamyl propionate may be added to the formula.

ARTIFICIAL CATAWBA-GRAPE OIL

	oz.		oz.
Acetic Ether	25½	Oil of Persico	3
Ethyl Butyrate	10	Oil of Cognac	4
Benzyl Butyrate	21	Catawba-Grape Juice	100
Methyl Anthranilate	8	95% Alcohol	300
Amyl Valerianate	1	Glycerin	50
Ethyl Salicylate	1	Color	to suit

Add the ingredients to the alcohol in the order listed. Then add the grape juice and mix well. Finally add the glycerin and mix again. Let stand covered for a day and filter.

Color grape shade with certified food color.

ARTIFICIAL CHERRY OIL

Amyl Acetate	2 oz.	Raspberry Flavor,	
Benzaldehyde	8 oz.	Artificial	10 oz.
Oil Orris, Concrete	1 dr.	Oil Cassia	15 drops
Vanillin	½ oz.	Cherry Juice of	
Heliotropine	1¼ oz.	Extract*	2 pt.
		Alcohol	2 pt.

Dissolve the heliotropine and vanillin in the alcohol, then add the other materials, one at a time, mixing well after each addition, adding the cherry juice or extract last.

* CHERRY EXTRACT

Evaporated Cherries	50 lb.	Water	10 gal.
Alcohol	7 gal.		

Mix the alcohol and water, pour over the fruit and allow to stand closely covered for 4 or 5 days.

Then add:

Oil of Cherry Laurel (free from Prussic Acid)	7½ oz.	Alcohol	3 pt.
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Drain and press out the fruit, and filter the resulting extract.

ARTIFICIAL PINEAPPLE OIL

	oz.		oz.
Butyric Ether	40	Vanillin	10
Acetic Ether	5	Strained Pineapple Juice	650
Terpeneless Oil of Orange	5	Glycerin	250
Terpeneless Oil of Lemon	6	Tincture of St. John's	
Artificial Oil of Rose	2½	Bread*	50
Amyl Acetate	7½	Alcohol	950
Benzyl Butyrate	4½		

Dissolve the vanillin in the alcohol, add the oils, and mix well; then add the tincture of St. John's bread and mix again. Add the other ingredients, one at a time, mixing well after each addition, finally adding the glycerin and strained pineapple juice.

This may be colored, if desired, with yellow pure food color, using just enough to get the shade wanted.

This makes a very superior product with a true pineapple flavor. It is used in the proportion of 1 to 1½ ounces of syrup for bottling.

* TINCTURE OF ST. JOHN'S BREAD

Powdered St. John's Bread	2 lb.	Water	4 pt.
Alcohol	4 pt.		

Mix and let stand, with frequent stirring, for several days. Then pour off the liquid and pack the dregs in a percolator. Pour on the liquid and percolate slowly, finally passing enough water through the percolator to make the finished product measure 8 pints. Preserve in closely stoppered containers for use as needed.

ARTIFICIAL RASPBERRY OIL

	oz.		oz.
Amyl Acetate	365	Vanillin	60
Benzyl Acetate	60	Tincture of Civet	10
Acetic Ether	80	Fluid Extract of Rhatany	20
Tincture of Orris	100	Raspberry Spirit†	630
Ionone	10	Glycerin	180
Artificial Oil of Rose	10	Peach Aldehyde (1:10)§	10
50% Molasses*	200	Alcohol	100
Solution of Jasmin			
Concrete** (1:10)	10		

Dissolve the vanillin in the alcohol and then add the other ingredients, one at a time, adding the glycerin last. Mix well after each addition.

This is a very high-grade fruit oil with a true raspberry flavor. Bottlers use it in the proportion of 1 to 2 ounces to 1 gallon of syrup.

After all flavors of this kind are completely mixed, if not perfectly clear, they should be filtered, adding a little purified talc or finely powdered pumice stone to the filter to aid in clearing.

Artificial fruit oils for bottlers' use are used in the preparation of flavored syrups and in the manufacture of carbonated beverages. They may be used in the formulas for such beverages which are given in the preceding pages.

* The 50% molasses is made by mixing 100 ounces of ordinary cooking molasses with 100 ounces of water.

** The solution jasmine concrete (1:10) is made by dissolving 1 part of oil of jasmin concrete in 10 parts of alcohol.

† RASPBERRY SPIRIT

Dried Raspberries	4 lb.	Alcohol	5 pt.
Raisins	2 lb.	Water	5 pt.

Crush up the dried raspberries and cut the raisins small. Put into a convenient vessel with the alcohol and water and let stand (closely covered) for a week, stirring frequently; then strain, pressing out the liquid and finally filtering clear.

§ The solution of peach aldehyde (1:10) is made by dissolving 1 part of peach aldehyde (aldehyde C₁₄) in 10 parts of alcohol.

ARTIFICIAL STRAWBERRY OIL

Acetic Ether	8 oz.	Oil of Bois De Rose	6½ dr.
Butyric Ether	20 oz.	Tincture of Orris	13 pt.
Amyl Acetate	32 oz.	Alcohol	18 gal.
Oil of Wintergreen		Water	18 gal.
Natural or True	1½ oz.	Certified Red Food Color	to suit
Oil of Rose	6½ dr.		

Add the oils and other ingredients to the alcohol, adding the water last.

To each gallon, add 2 ounces of *strawberry fortifier*.*

This fruit oil is used by bottlers in the proportion of 1 ounce to a gallon of syrup.

Instead of the true oil of rose, in the formula, one of the synthetic rose oils may be used if desired. They are considerably cheaper and give practically the same effect in the product.

The tincture of orris called for in the formula is made by macerating 110 pounds of powdered orris root with 13½ gallons of alcohol for a week, then packing in a percolator and percolating slowly, adding enough water through the percolator to give 25 gallons of the finished tincture.

* STRAWBERRY FORTIFIER

Amyl Butyrate	10 oz.	Methyl Heptin Carbonate	2 oz.
Citral	6½ oz.		

Mix and dissolve. Store in closely stoppered bottles for use as needed.

MISCELLANEOUS FORMULAS

This chapter presents a variety of formulas for products which, though not classified under the previous chapter headings, are preparations frequently used around the home, garden, farm, or country places.

PLANT FOOD AND SOIL CONDITIONER

	%		%
Technical or Fertilizer		Fertilizer or Technical	
Grade Dipotassium Hy-		Grade Ammonium	
drogen Phosphate	3.55	Nitrate	3.85
Technical Potassium		Technical Grade	
Nitrate	9.07	Sodium Alginate*	1.50
		Water	81.68

Dissolve the sodium alginate in the water, with stirring; then add the other ingredients, with continued stirring. For batches up to 35 or 40 gallons, a 55-gallon steel drum with the top cut off and equipped with a portable stirrer which may be mounted on the rim of the drum works well.

Mix thoroughly a quart of plant food and soil conditioner with 20 quarts of water and sprinkle evenly over not more than 500 square-feet of soil.

This is a modern plant food and soil conditioner which gives surprising results on soils of all types, stimulating growth of vegetables, flowers, field crops, lawns, etc.

* Order an alginate which will give a high viscosity in water.

GARDEN AND FARM FERTILIZER

	Parts		Parts
Crude Dicalcium Phosphate	10	Crude Calcium Carbonate	5
Crude Sodium Phosphate	15	White Calciferous Earth	
Crude Sodium Nitrate	15	(Inert Base)	48
Crude Potassium Nitrate	7		

Mix thoroughly.

The white calciferous earth may be replaced with ground dry peat moss.

This well-balanced chemical fertilizer is recommended as a general plant food which may be used for the flower garden, family garden, greenhouse, trucking, lawn or general farming.

For potted plants, work into the soil around the plants, 1 level teaspoonful to each quart of soil. Keep it off the foliage and away from the stem and water immediately. Or add 1 teaspoonful to a pint of water, stir thoroughly and use it for watering the plant. Repeat at intervals of 30 to 45 days. For general farming, use at the rate of 300 to 400 pounds per acre; for the lawn, use at the rate of 10 pounds per 4 square rods of surface; for general indoor or greenhouse potting, use at the rate of 4 pounds to the barrowful of soil; for general gardening operations, use at the rate of standard fertilizers or 1000 to 2000 pounds per acre.

WEED KILLER

Calcium Chloride Flakes	5 lb.	Copper Sulfate	2 lb.
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Use the pea-sized crystals of copper sulfate and mix thoroughly. Put up in 1-pound friction-top tin cans.

This is an effective weed killer and destroyer for dandelions and plantains in lawns, dangerous pollen-producing plants, such as ragweed and golden rod, as well as wild morning glory and similar plants.

Dissolve the contents of a 1-pound can in 1 gallon of water and use as a spray wherever weeds are troublesome. Spray freely, best on a hot, dry day.

Note: This product tends to harden in the can. If this occurs, pry off the lid and put the can into a container holding a gallon of water until the contents of the can have dissolved.

GENERAL-PURPOSE GARDEN AND FARM INSECTICIDE

	Parts		Parts
Copper Arsenite	1.500	Crude Carbolic Acid	0.400
Copper Sulfate	0.100	Powdered Hellebore	10.000
Sulfur	6.000	Crude Infusorial Earth	
Nicotine	0.125	(Kieselguhr)	81.875

Mix well by running through a sieve mixer several times.

This insecticide destroys many insects which are injurious to plants, vegetables, flowers, etc., including potatoes, cabbages, currants, shrubs, vines, and trees. It will not injure the foliage.

Blow or dust the powder on the infested plant and repeat the application as necessary.

MOSQUITO-CONTROL SPRAY

	%		%
Mineral Oil	70	Water	23
Duponol WA Paste	7		

This emulsion is prepared by dissolving the Duponol in part of the water, and then adding the oil and the remainder of the water in small portions alternately. A partially refined mineral oil is used in the formula.

This product is sprayed on swamps to obtain a continuous film of oil on the water and thus control the propagation of mosquitoes.

INSECTICIDE AND GARDEN SPRAY

Formula No. 1

Nicotine	0.416 oz.	Oil of Rose Geranium	2 min.
Powdered Dry		Oil of Citronella	1 min.
Potash Soap	1.61 oz.	Formaldehyde	15 min.
Oil of Lemon	4 min.	Water	to make 1 pt.

Dissolve the soap in the water, add the other ingredients, mix thoroughly, add powdered talc, and filter clear.

Formula No. 2

	%		%
Nicotine	0.90	Soft Soap (U.S.P.)	10.00
Pine Oil	0.95	Water	87.20
Cedar Oil	0.95	Formaldehyde	15 min. to pt.

It is important that the correct nicotine percentage is stated on the label. Domestic tobaccos vary from 1.5 to 8.0% in nicotine content, which is extracted from the tobacco by infusion, that is, by pouring boiling water on the tobacco, letting it cool with frequent stirring, then straining off the liquid, and lastly pressing out all the liquid from the tobacco with a tincture press. Since nicotine is volatile, it must not be extracted with continued boiling as the nicotine would then be volatilized. The tobacco extract is then analyzed for nicotine strength, and diluted accordingly or used as such.

This safe and effective insecticide can be used against green and black fly, thrip, and brown and white scale. For green or black fly, spray or dip with a 1 part to 40 parts of water solution; for thrip, use 1 part to 20 of water solution; for brown or white scale, use 1 part to 12 or 15 parts of water solution.

Keep the plants in motion for 15 to 20 seconds when dipping.

INSECTICIDE PASTE

	Parts		Parts
Lead Arsenate Paste (50% Water)	50	Calcium Carbonate (Cheap Whiting)	25
Copper Arsenate	5	Water	20

Mix well, stirring the batch while filling the containers.

This combined insecticide and fungicide may be used for vegetables, shrubs, roses, and small fruits and should be greatly diluted with water before using.

ASBESTOS ROOF COATING

Formula No. 1

(Best Quality)

Manganese Resinate Gum	50 lb.	Boiled Linseed Oil	17 gal.
Gilsonite	300 lb.	Fine Asbestos Fiber	25 lb.
Malta Asphaltum	75 lb.	Heavy Naphtha	66 gal.

Melt the manganese resinate, gilsonite, and asphaltum with the linseed oil, cooking for 1½ hours at a temperature low enough not to burn the mixture. Remove from the fire and sift in the asbestos fibre, mixing well. When cooled down to about 180°F., thin with the heavy naphtha. The thinning should be done in a room away from all open fires or lights.

This gives a heavy bodied product which is applied to the roof with a

stiff brush. If too heavy, thin out with heavy naphtha to the desired consistency. It should always be heavy enough not to run off the roof before drying. The roof should be perfectly dry before applying.

Formula No. 2

(Cheaper Grade)

Coal Tar	1 gal.	Asbestos Fiber	1½ lb.
Asphaltum	6 oz.	Plumbago	1½ lb.
Turpentine	6 fl. oz.	Fine Mica	¾ lb.
Gasoline	6 fl. oz.		

Put the coal tar into a kettle, add the asphaltum, and heat until completely melted and mixed. Remove from the fire and sift in the asbestos fiber, plumbago, and mica slowly, with constant stirring. When cooled down to 180°F., stir in the turpentine and gasoline.

Apply with a stiff brush to the roof, which should be perfectly dry. Roof coatings are used to renew and stop leaking in composition, metal, or shingle roofs, also to waterproof walls, tanks, cisterns, etc.

Thinner roofing compounds or roof paints are made in exactly the same way, except that more heavy naphtha is used, so as to get a product of the exact consistency required. In no case should the product be so thin that it will run off the roof.

SWEEPING COMPOUND

Formula No. 1

Fine Saw Dust	60 lb.	American Pine Oil	½ lb.
Fine White Sand	30 lb.	Water Soluble Red or	
Cheap Mineral Oil	10 lb.	Green Dye	½ oz.

Mix well. Dissolve the dye in hot water in large tubs, pour the saw dust in and then spread out thin on a cement floor to dry. Green saw dust alone is a good seller at Christmas time.

The addition of 1 pound of formaldehyde as an antiseptic and 1 pound of D.D.T. as an insecticide to the formula as given enhances its usefulness.

Formula No. 2

Fine Sawdust	100 lb.	Oil of Cedar Leaf	2 lb.
Sea or Lake Sand	18 lb.	Pine Oil	2 lb.
Salt	20 lb.	Paraffin Oil	2 gal.
Paradichlorobenzene	3 lb.	Soluble Aniline	
		Oil Color	to suit

Dissolve sufficient oil-soluble aniline color of any desired shade (green is most commonly used) in the paraffin oil by means of heat to give it a deep color. While still hot, add the paradichlorobenzene, and after the mixture has cooled down somewhat, add the oil of cedar leaf and the pine oil. Spray or sprinkle the oil mixture over the sawdust, mixing well. Then combine the colored and scented sawdust with the sand and salt.

Sweeping compounds vary considerably in the proportion of oil they contain. Formula 2 is the grade commonly used for ordinary wood floors. For rough floors, it is customary to increase the quantity of oil. If the compound is to be used on carpets, the oil should be reduced to 1½ gallons and the sand omitted.

Formula No. 3

Sawdust	80 lb.	Cheap-Grade Cylinder	
Sand	20 lb.	Oil	about 1 gal.
		American Pine Oil	½ lb.

The sawdust is usually colored red or green by shoveling it into a large drum of hot water containing water-soluble dye. After ½ hour, take the sawdust out of the bath and spread thin on a cement floor to dry. At this stage, the compound can also be used for Christmas gardens. Then shovel the sand and the dry colored saw dust into a rotary mixer, add the oil and mix well.

PAINT AND TAR REMOVER*

This paint and tar remover combines four active solvents and is easily dispersed in water with which it forms a stable emulsion that is excellent for wool scouring.

	lb.		lb.
Xylene	140	99% Isopropanol	33
Trichloroethylene	47	Sulfonated Castor Oil	24
Ethylene Dichloride	61	Triethanolamine	21½
Oleic Acid	40		

AVOID OPEN FLAMES WHEN MIXING OR USING THIS FORMULA.

Mix the solvents, oleic acid, and sulfonated oil, add the amine, and stir to obtain a clear solution. Adequate ventilation should be provided, and special care should be taken, to avoid inhaling the vapor and repeated contact with the skin whenever chlorinated solvents are used.

* Courtesy of Carbide and Carbon Chemicals Co.

CEMENT IRON

	lb.		lb.
Iron Filing or Iron		Sulfur Flowers	1
Powder (Reduced Iron)	98	Granular Sal Ammoniac	1

Mix well.

Mix a small amount with enough water to make a thick creamy paste. It must be used at once as it sets fast. It holds on all metals.

CEMENT FOR CROCKERY AND POTTERY

	Parts		Parts
Clay	4	Sulfur Flowers	$\frac{1}{2}$
Iron Filing	4	Ammonia Water	
Sal Ammoniac	1	to make a thick paste	

Mix well.

SETTING COMPOUND FOR CEMENT AND CONCRETE

Calcium Chloride Flakes	8 lb.	Kaolin	2 lb.
Water	1 gal.		

Dissolve the calcium chloride in the water and stir in the kaolin.

This is a cheap and simple liquid compound which greatly hastens the setting of cement and concrete, increases the strength and density, and waterproofs cement and concrete. It improves the quality and appearance of cement and concrete work and, through its anti-freezing qualities, it makes possible to carry on operation in cold weather. Tests have demonstrated that setting compounds may increase the strength of the concrete 100% in 24 hours and in 48 hours gives 75% or more of the strength normally attained in 30 days.

Stir the compound so as to put the kaolin in suspension and mix with the water used in tempering the cement.

For basement and below-grade work and for floor slabs, use 1 quart of the compound to each cubic yard of concrete, mixing this with the water used with the cement and sand. For above-grade work, use 1 pint of the compound to each cubic yard. For floor topping, clean the surface and wet down with clean water. Apply a bond coat of neat cement, using 1 gallon of the compound to each 3 gallons of water. Brush well into the surface of the slab. Use only enough cement with the water to form a thin wash. Then, at once, apply the cement topping, using 1 pint of the compound to each sack of cement. For outside stucco work, use 1 gallon of

the compound to each 40 gallons of water, or 1 pint to each sack of cement.

CONCRETE

	lb.	%
Cement* ($\frac{1}{10}$ Bag)	9.4	13.25
Aggregate	39.0	52.00
Sand (35%)	21.0	28.00
Water	5.0	6.75

Mix thoroughly by shoveling or in a mixer. Pour and cover. For waterproofing keep wet for 2 days (48 hours) while for ordinary cement keep wet 5 to 10 days.

Use 6 gallons of water per 100 lb. cement.

* Use Incodel or Incor 24-hour cement.

WATERPROOFING CEMENT PAINT

	lb.		lb.
Incor (24 hour) Cement	2	Titanium Oxide	$\frac{1}{2}$
Fine White Sharp Sand	$2\frac{1}{2}$		

Mix. Use 5 pounds and water to make 1 gallon.

ROAD SPRAY EMULSIONS

	%		%
Tar Oil	80.0	Water	10.0
Duponol WA Paste	8.0	Calcium Chloride	2.0

Mix the Duponol with the tar oil which has previously been warmed slightly. Add the water containing the calcium chloride.

It is possible to dilute this type of emulsion by further addition of water and it is used as a spray for keeping down dust on roads.

ASPHALT EMULSIONS

	%		%
Asphalt	78	Water	20
Duponol LS Paste	2		

The asphalt is heated to 120°C. and poured into the water in which the Duponol was dissolved at 90°C. To obtain a good emulsion, a high speed electric stirrer is required. The resulting emulsion is too viscous to pour, but it may be readily extended with water. It shows no separation for

several days. This emulsion is employed in road paving and it breaks in 1 hour after application to a sand and gravel road bed.

MACHINERY AND WOODWORK CLEANING EMULSIONS

	%		%
Tetralin Emulsion		Hexalin	4.8
Duponol LS Paste	47.6	Tetralin	47.6

Prepare by adding the Duponol to the previously mixed solvents.

This emulsion is relatively stable and may be infinitely diluted by pouring directly into water. It is very effective for cleaning machinery and woodwork and as a scouring assistant for textiles.

Formula No. 2

	%		%
Tetralin Emulsion		Pine Oil	3
Duponol LS Paste	15	Tetralin	70
Hexalin	2	Water	10

Prepare by mixing at room temperature the Duponol, hexalin and pine oil. Stir until a clear mixture is formed. Continue stirring and add the tetralin slowly. Finally add the water and stir until a homogeneous milky emulsion is formed.

This stable emulsion can be used for the same purpose as Formula No. 1.

DEGREASING SHEEPSKIN SOLVENT EMULSION

	%		%
Kerosene	50.00	Borax	0.50
Duponol D Paste	2.00	Water	46.25
Cetyl Alcohol Flakes	1.25		

Dissolve the cetyl alcohol flakes in the kerosene, warming gently if necessary. Add slowly, with efficient hand agitation, the Duponol and borax dissolved in about one fourth of the water. Then add the balance of the water and stir. A more fluid emulsion is obtained by using only Duponol and omitting the cetyl alcohol flakes and borax.

Degreasing shearlings or sheepskins prior to pickling is one of the uses for this type of solvent emulsion.

CLEANING EMULSION FOR TEXTILES, MACHINERY

	%		%
Benzine	60	Water	36
Duponol D Paste	4		

Prepare by stirring small portions of the benzine into the Duponol. Each addition of benzine should be taken up by the emulsion before the next addition is made. Agitation by hand stirring or by a slow-moving electrical stirrer is sufficient. Then add water to the mixture, while stirring vigorously.

This is a fairly stable milky emulsion. It is useful in cleaning textiles, machinery, etc. A similar emulsion can be made by replacing the benzine with toluene.

DISINFECTANT AND DEODORANT EMULSIONS

Pine Oil	35.0%	Duponol LS Paste	65.0%
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Prepare by adding the pine oil to the Duponol, while stirring. The emulsion is first milky but it becomes clear.

The pine oil content may be varied from 16 to 40% without causing the emulsions to become milky.

This emulsion can be readily extended with water to form stable, milky emulsions. They are used as disinfectants and deodorants, textile wetting out and scouring agents.

CLEANING EMULSION FOR WOOLENS

Xylene	95.5%	Duponol G	4.5%
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Duponol G dissolves readily in the xylene to make a "soluble oil." This forms an emulsion with water which is used in woolen mills for removing tar.

METAL-CLEANING COMPOUND

	%		%
Kerosene	96.5	Ocenol	1.0
Duponol G	2.5		

The Duponol is mixed thoroughly with the Ocenol and then added to the kerosene, while stirring. The solution of Duponol crystals can be hastened by either heating slightly above room temperature or using more Ocenol.

This "soluble oil" forms stable neutral emulsions with water.

APPENDIX

The formulas and information contained in this work are to the best of the author's knowledge accurate, practical, and scientifically and therapeutically correct.

However, as individual requirements as well as the proficiency of manufacturers vary, the author cannot assume responsibility concerning the manufacture and use of the products.

RULES FOR FIGURING DOSAGE

Young's Rule

Taking the adult dose as unity the fraction proper for a child of a given age may be found by the formula:

$$\frac{\text{Age}}{\text{Age plus 12}}$$

For example, the proper dose for a six-year-old child will be:

$$\frac{6}{6 + 12} = \frac{6}{18} = \frac{1}{3}$$

Therefore, a child of six years should take one third of the adult dose.

Cowling's Rule

The proper fraction of the adult dose for a child at any age may be found as follows:

$$\frac{\text{Age at next birthday}}{24}$$

To find the dose for a six-year old child:

$$\frac{6 + 1}{24} = \frac{7}{24}$$

which is a trifle less than one third. From this it is obvious that the two rules give very similar results.

CONSUMER PROTECTION
BY THE
FOOD AND DRUG ADMINISTRATION
FEDERAL SECURITY AGENCY

The Food, Drug, and Cosmetic Act of 1938 affords much more protection than was provided by the Act of 1906.

Foods

STANDARDS

* The Act authorizes the Administrator to promote honesty and fair dealing in the interest of consumers by setting a reasonable definition and standard of identity and a reasonable standard of quality and fill of container for food.

HEALTH GUARDS

A food must not be injurious to health.

Candy must not contain alcohol or any "Prizes" or other inedible substance.

* The Administrator may limit the amount of added dangerous substances that cannot be avoided in the manufacture of a food.

Food containers must be free from any substance which may cause the contents to be harmful.

Coal-tar colors contained in food must come from a batch certified as being harmless.

LABELING INFORMATION

The following facts must appear in the labeling:

1. The name and address of the manufacturer, packer or shipper.
2. An accurate statement of the quantity of contents.

3. If composed of two or more ingredients, and it is not a standardized food, the common or usual name of each ingredient must be listed.
- * 4. The labeling of food for special dietary uses must bear information considered necessary to fully inform purchasers.
5. Artificial flavoring, artificial coloring or chemical preservative in foods must be listed in the labeling.
6. All the information required by the Act must be shown in the labeling in a form easily noticed and readily understood.

SANITATION

Food must be prepared, packed, and held under sanitary conditions.
A food must not be filthy, putrid, decomposed, or otherwise unfit.
A food must not be the product of a diseased animal.

PROHIBITED DECEPTIONS

Food labels must not be false or misleading in any particular.
Damage or inferiority in a food must not be concealed in any manner.
No substance may be added to a food to increase its bulk or weight or make it appear of greater value than it is.
A food must not be sold under the name of another food.
Imitations and food substandard in quality must be so labeled.
A substance which is recognized as being a valuable part of a food must not be omitted.
Food containers must not be so made, formed or filled as to be deceiving.

** In these instances the Federal Security Administrator is authorized to hold public hearings to receive evidence upon which the necessary regulations are based.*

Public Law 459—Sec. 407

Colored Oleomargarine

Sec. 407. (a) Colored oleomargarine or colored margarine which is sold in the same State or Territory in which it is produced shall be subject in the same manner and to the same extent to the provisions of this Act as if it had been introduced in interstate commerce.

(b) No person shall sell, or offer for sale, colored oleomargarine or colored margarine unless:

- (1) such oleomargarine or margarine is packaged,
- (2) the net weight of the contents of any package sold in a retail establishment is one pound or less,
- (3) there appears on the label of the package (A) the word 'oleomargarine' or 'margarine' in type or letters at least as large as any other type or lettering on such label, and (B) a full and accurate statement of all the ingredients contained in such oleomargarine or margarine, and
- (4) each part of the contents of the package is contained in a wrapper which bears the word 'oleomargarine' or 'margarine' in type or lettering not smaller than 20-point type.

For other information on Oleomargarines, write for pamphlet to "Department of Health, Education, and Welfare," Washington 25, D.C.

Drugs

HEALTH GUARDS

Before a new drug is placed on the market an application must be filed with the Federal Security Administrator. This application must be accompanied by ample evidence of the safety of the drug.

Drugs must not be dangerous to health when used in accordance with the printed directions.

Containers for drugs must not be composed of any poisonous substance which may render the contents harmful.

Drug products must not contain any filthy or decomposed substance.

Drugs must not be prepared, packed, or held under insanitary conditions.

A drug liable to deterioration must be suitably packaged and in formatively labeled.

Drugs that do not meet official standards must be labeled to show exactly wherein they vary from the standards.

Official drugs must be packaged and labeled as prescribed by the official pharmacopoeias and formulary.

No substance may be added or substituted to reduce the quality or strength of any drug.

A drug must not differ in strength, purity, or quality from that claimed in its labeling.

Coal-tar colors contained in drugs must come from a batch certified as being harmless.

LABELING INFORMATION

The labeling of a drug must bear the following information:

1. The name and address of the manufacturer, packer, or distributor.
2. An accurate statement of the quantity of contents.
3. A statement of the quantity or proportion of certain habit-forming drugs together with the statement "warning—may be habit forming."
4. (A) The common or usual name of the drug.
(B) When the drug is composed of two or more ingredients, the common name of each active ingredient and amounts of certain ingredients listed in the act.
5. Adequate directions for use.
6. Warnings against unsafe use by children.
7. Warnings against use in disease conditions where cautions are necessary to insure against danger.
8. Warnings against use in an amount or for a length of time or by a method of administration which may make it dangerous to health.
9. All the information required by the Act must be shown in the labeling in a form easily noticed and readily understood.

PROHIBITED DECEPTIONS

Drug labeling must not contain false or misleading statements.

A drug must not be an imitation or offered under the name of another drug.

Containers for drugs must not be so made and filled as to be deceptive.

Cosmetics

HEALTH GUARDS

A cosmetic must not contain any substance which may make it harmful to users when used as is customary or under the directions for use indicated in the labeling.

Dangerous coal-tar hair dyes must be labeled with the caution statement stipulated in the Act.

Cosmetic containers must not be composed of any substance which may render the contents harmful.

Cosmetics (except hair dyes) may contain only those coal-tar colors which come from a batch certified as being harmless.

SANITATION

A cosmetic must not consist of any filthy, putrid or decomposed substance.

Cosmetics must be prepared, packed, and held under sanitary conditions.

LABELING INFORMATION

Cosmetic labeling must include the following information:

1. The name and address of the manufacturer, packer, or distributor.
2. An accurate statement of the quantity of contents.
3. All the information required by the Act must be shown in the labeling in a form easily noticed and readily understood.

PROHIBITED DECEPTIONS

The labeling of a cosmetic must not be false or misleading in any particular.

A cosmetic container must not be so made, formed, or filled as to be misleading.

Devices**HEALTH GUARD**

A device must not be dangerous to health when used with the frequency or duration prescribed in the labeling.

PROHIBITED DECEPTION

The labeling of a device must not be false or misleading in any particular.

LABELING INFORMATION

The labeling of a device must contain the following information:

1. An accurate statement of the quantity of contents.
2. The name and address of the manufacturer, packer or distributor.
3. Adequate directions for use.
4. Warnings against unsafe use by children.
5. Warnings against uses which may be dangerous to health.
6. All the information required by the Act must be shown in the labeling in a form easily noticed and readily understood.

The Labeling of Drugs
under The Provisions of the Federal Food, Drug, and Cosmetic Act
Department of Health, Education, and Welfare
Food and Drug Administration

Below are stated in nonlegal terms some of the principal requirements of the Federal Food, Drug, and Cosmetic Act as they relate to the labeling of drugs. These statements are not meant to be exhaustive, nor do they indicate the various exceptions and special cases in which they may not be applicable. For complete information, reference is made to the act itself and to the regulations. The sections of the law and the applicable regulations are mentioned in connections with the various subjects discussed.

SOME GENERAL PROVISIONS

1. Information required by the law to appear on the label must appear also on the wrapper or carton of the retail package, or be easily legible through it. [Sec. 201(k)]

2. All data required to appear on the label or labeling must be prominently and conspicuously placed thereon so as to be readily available under customary conditions of purchase and use. Prominence and conspicuousness of required information should not be sacrificed for any other phraseology, pictures, etc. [Sec. 502(c)]

3. All information required on the label or labeling must appear in English; if any statement is made in a foreign language, all required information should appear in that language also as well as in English. [Regulation (c) under Sec. 502(c)]

4. New drugs must not be marketed before an application has been filed with the Secretary and has become effective. [Secs. 201(p), 301(d), 505]

5. Drugs containing insulin, penicillin, streptomycin, bacitracin, aureomycin (chlortetracycline), or chloramphenicol must not be marketed until they have been certified as prescribed by the Secretary. (Secs. 506 and 507)

6. A person who ships a drug in interstate commerce is responsible for compliance of that drug with the law unless he holds a guaranty in proper form. [Secs. 301(a), 303(c)]

7. Any person who causes a drug to be adulterated or misbranded while it is in interstate commerce violates the law. [Sec. 301(b)]

8. Any person who receives a drug in interstate commerce and thereafter sells it or offers to sell it or give it away is responsible for compliance with the act, unless he is protected by a guaranty in proper form. [Secs. 301(c), 303(c)]

9. Any act with respect to a drug or to its labeling while it is held for sale after shipment in interstate commerce, if this results in causing the article to be adulterated or mis-branded, constitutes a violation of the law. [Sec. 301(k)]

10. A drug sold under an official name [Sec. 201(g)] or under circumstances creating the impression that it is an official drug must comply with the official requirements except that it may differ from the official requirements in strength, quality, or purity only. If it does so differ, the label must indicate the nature and extent of each such difference. Difference from official specifications in the identity of ingredients is not permitted. [Sec. 501(b)]

11. Official drugs must be packaged and labeled as prescribed in the official texts. Unofficial drugs should be packaged so as to prevent deterioration. [Sec. 502(g) and (h)]

12. Drugs must not be packaged in unnecessarily large or otherwise deceptive containers. [Sec. 502(l)]

13. Drugs required to bear the legend "Caution: Federal law prohibits dispensing without prescription" must not be sold without prescription. [Sec. 503(b)]

LABEL AND LABELING

14. The "label" is the principal display portion or portions of the container and the outside carton or wrapper. [Sec. 201(k)]

15. "Labeling" includes all printed or written matter accompanying the article at any time. [Sec. 201(m)]

THE LABEL MUST CONTAIN

16. The name and address of the manufacturer, packer, or distributor. [Sec. 502(b)]

17. A statement of the quantity of the drug in the package [Sec. 502(b)]

18. A statement of the quantity and percentage of certain habit-forming drugs, together with the statement "Warning—May be habit forming." [Sec. 502(d)]

19. The common or usual name of the drug. [Sec. 502(e)]

20. If it is composed of two or more ingredients, the common name of each active ingredient and the proportions of certain specified ingredients. [Sec. 502(e)] Abbreviations should be avoided in listing ingredients. If all ingredients are mentioned the statement should clearly show which are active and which are merely solvents, diluents, flavorings, etc.

21. The legend "Caution: Federal law prohibits dispensing without prescription" if the drug is unsuitable for use in self-medication. [Sec. 503(b)]

THE LABEL OR OTHER LABELING MUST CONTAIN

22. Adequate directions for use. [Sec. 502(f)]

23. Adequate warnings against unsafe use by children and against use in conditions where warnings are required to insure against harm [Sec. 502(f)]

24. Warning against use in an amount or for a length of time or by a method of administration which may make it dangerous to health. [Sec. 502(f)]

25. A clear indication of therapeutic limitations. The labeling should not mention the useful effects of a drug only but should disclose any harmful or deleterious effects also. [Sec. 201(n)]

THE LABEL OR OTHER LABELING MUST NOT CONTAIN

26. Any false or misleading statement regarding the composition of the article or the effects it will produce. [Sec. 502(a)]

27. Any false or misleading statement regarding any other drug or device. [Regulation (b) under Sec. 502(a)]

28. The legend "Caution: Federal law prohibits dispensing without prescription" on drugs safe and suitable for use in self-medication. [Sec. 503(b)]

APPROVAL OF LABELING OR FORMULAS

29. The act does not authorize the Food and Drug Administration to approve labels or formulas. It places upon manufacturers and distributors full responsibility for distributing their products in harmony with its provisions. Before undertaking the preparation or revision of labeling, the proprietor should inform himself of the provisions of the law and

regulations. If he does not have expert knowledge concerning the treatment of the diseases for which a drug is recommended and concerning the physiological effects and therapeutic limitations of the ingredients of which it is composed, he should obtain advice from those who have such expert knowledge. The facilities available to the Administration will not permit review of any considerable number of labels or extensive labeling for a single manufacturer, but comment will be offered on details concerning which a proprietor may have doubt after he has made a careful study of the terms of the law as they apply to his preparations. When labeling is submitted for comment, the complete labeling and the formula, showing the amount of each active ingredient contained in a stated dose or other unit of the medicine, together with other pertinent factual information, should be submitted, preferably in triplicate.

ADVERTISING, USE OF MAILS, AND STATE LAWS

30. The Food and Drug Administration cannot supply information concerning the requirements of Federal laws pertaining to the advertising, other than labeling, of food, drugs, and cosmetics, or to the requirements of postal laws. These statutes are enforced by the Federal Trade Commission and by the Post Office Department, respectively.

31. A list of State officials from whom information concerning State laws may be obtained will be furnished, upon request, by the Food and Drug Administration.

TITLE 21—FOOD AND DRUGS

CHAPTER I—FOOD AND DRUG ADMINISTRATION, FEDERAL SECURITY AGENCY

Part 3—Statements of General Policy or Interpretation *Sterility of Ophthalmic Solutions*

Pursuant to section 3 of the Administrative Procedure Act (60 Stat. 237, 238; 5 U.S.C. 1002), the following statement of policy is issued.

§ 3.28 *Notice to manufacturers and repackers of ophthalmic solutions.*
(a) Investigations by pharmaceutical manufacturers, physicians, and the Food and Drug Administration have revealed that liquid preparations for ophthalmic use contaminated with viable microorganisms have been responsible for serious eye injuries and, in some cases, complete loss of vision. The Food and Drug Administration has conducted a survey of

medical opinion and has found that it is the consensus of informed persons that such preparations should be sterile. It is evident that liquid preparations offered or intended for ophthalmic use purport to be of such purity and quality as to be suitable for safe use in the eye. The Federal Security Agency concludes that such preparations fall below their professed standard of purity or quality and may be unsafe for use if they are not sterile. Accordingly, liquid preparations offered or intended for ophthalmic use which are not sterile may be regarded as adulterated within the meaning of section 501 (c) of the Federal Food, Drug, and Cosmetic Act and, further, may be misbranded within the meaning of section 502 (j) of the act.

(b) Liquid ophthalmic preparations packed in multiple-dose containers should (1) contain one or more suitable and harmless substances that will prevent the growth of microorganisms, or should (2) be so packaged as to volume and type of container and so labeled as to duration of use and necessary warnings as will afford adequate protection and minimize the hazard of injury resulting from contamination during use.

*Memorandum on Warning Statements
Necessary under Section 502 (f) (2) F.D.A.*

1. Cathartic or laxative drugs (except castor oil and phenolphthalein) which act as irritants to the gastro-intestinal tract or stimulate intestinal peristalsis:

“Warning: Not to be used when abdominal pain (stomach-ache, cramps, colic), nausea, vomiting (stomach sickness) or other symptoms of appendicitis are present.

“Frequent or continued use of this preparation may result in dependence on laxatives.”

2. Castor Oil:

“Warning: Not to be used when abdominal pain (stomach-ache, cramps, colic), nausea, vomiting (stomach sickness) or other symptoms of appendicitis are present.

“Frequent or continued use of this preparation may result in dependence on laxatives.”

“Do not use during pregnancy except on competent advice.”

3. Phenolphthalein:

“Warning: Not to be used when abdominal pain (stomach-ache, cramps, colic), nausea, vomiting (stomach sickness) or other symptoms of appendicitis are present.

"Frequent or continued use of this preparation may result in dependence on laxatives."

"Important: If a skin rash appears, discontinue use."

4. Preparations containing so-called roughage materials and intended for use in constipation:

"Important: All varieties of constipation are not benefited by this preparation. It should be particularly avoided in cases such as spastic constipation in which abdominal discomfort or pain may be present."

5. Preparations containing mineral oil for oral administration:
"Warning: Do not take directly before or after meals."

6. Preparations containing sodium perborate as an active ingredient and intended for local use in the mouth and throat: "Warning: This preparation may cause irritation and inflammation of the gums, tongue, and mucous membranes of the mouth. It should be discontinued at the first sign of irritation or soreness. In case of doubt, consult your physician or dentist."

7. Nose drops, inhalants and sprays:

A. Those that contain oil as a vehicle or base:

"Caution: The use of excessive amounts of this preparation may be dangerous. Do not use at all in infants and younger children except on competent advice."

B. Those that contain ephedrine, epinephrine, amphetamine (benzedrine), propadrine, neosynephrine and other vaso-constricting drugs of similar activity:

"Caution: Frequent or continued use may cause nervousness, restlessness or sleeplessness. Individuals suffering from high blood pressure, heart disease, diabetes, or thyroid trouble should not use this preparation except on competent advice."

8. Preparations containing volatile oils, aromatics, or drugs of an oleoresinous nature and intended for their effect upon the urinary tract:
"Warning: If disturbances of the stomach or bowels, or skin rash is noticed, discontinue use."

9. Atropine and pharmacologically related drugs:

"Caution: Frequent or continued use of this preparation should be avoided. Discontinue if dryness of the throat, excessively rapid pulse or blurring of vision appears.

"Warning: This preparation should not be taken by elderly people except on competent advice."

10. Iodine or iodides:

“Warning: Do not use in cases of lung disease or chronic cough, goiter or thyroid disease, except upon the advice of a physician. “If a skin rash appears, discontinue use.”

11. Preparations containing carbolic acid as a therapeutically active ingredient:

Note: Products containing more than 2 per cent of carbolic acid are not considered safe for indiscriminate distribution.

“Warning: When applied to fingers and toes, do not use a bandage. “Apply according to directions for use, and in no case to large areas of the body.”

12. Cresols, creosote, guaiacol or coal-tar derivatives intended for use as douches:

Note: Preparations intended for use after dilution should bear adequate directions for preparing solution and thorough mixing before pouring into douche bag.

“Warning: The use of solutions stronger than those recommended may result in severe local irritation or burns or serious poisoning.”

13. Cresols, creosote, guaiacol, or coal-tar derivatives intended for surface application:

“Warning: Apply according to directions for use and in no case to large areas of the body.”

14. Strychnine:

“Warning: Do not take more than the dosage recommended. Frequent or continued use is to be avoided and its use for children and elderly persons may be especially dangerous.”

15. Anthelmintics:

The following preparations in therapeutically potent doses are not safe for indiscriminate distribution and should only be used under the direct supervision of a physician:

1. Carbon tetrachloride:

Note: Specific adequate directions for administration of a saline cathartic after use of this drug should be given.

“Warning: Avoid taking castor oil or other preparations or foods containing oil or fat while this drug is being administered. The use of this preparation in debilitated children and persons addicted to alcohol is dangerous.”

2. Tetrachloroethylene:

Note: Specific adequate directions for administration of a saline cathartic should be given.

3. *Aspidium* (Male Fern) :

Note: Specific adequate directions for administration of a saline cathartic should be given.

“Warning: Avoid taking castor oil or other preparations or foods containing oil or fat while this drug is being administered.”

4. *Santonin*:

“Very important: Shake vigorously before using. Failure to do so may result in serious injury.

“Caution: The use of more than the prescribed dose is dangerous.

“Do not take castor oil or other preparations or foods containing oil or fat while this drug is being administered.

“The prescribed dose should not be repeated within 7 days.”

5. *Chenopodium* oil:

Note: Specific adequate directions for administration of a cathartic, preferably castor oil, should be given.

6. *Thymol*:

Note: Specific adequate directions for administration of a saline cathartic should be given.

“Warning: Avoid taking alcohol or any preparation containing alcohol before, after or during administration of this drug.”

16. *Acetanilide*:

“Warning: Frequent or continued use may be dangerous, causing serious blood disturbances, anemia, collapse, or a dependence on the drug. Do not take more than the dose recommended. Not to be given to children.”

17. *Acetophenetidin*:

“Warning: Frequent or continued use may be dangerous, causing serious blood disturbances.

“Do not take more than the dosage recommended.”

18. *Antipyrine*:

“Warning: Frequent or continued use may be dangerous, causing serious blood disturbances.

“Do not take more than the dosage recommended.”

19. *Bromides*:

“Warning: Frequent or continued use may lead to mental derangement, skin eruptions or other serious effects.

“Do not take more than the dosage recommended.

“Not to be taken by those suffering from kidney disease.”

20. Mouth washes and gargles containing chlorates:
"Caution: Avoid swallowing."

21. Preparations containing arsenic except those employed as chemotherapeutic agents for specific diseases such as syphilis, amebic dysentery, etc.:

"Caution: Continued or prolonged use may result in serious injury."

22. Quinine, cinchonine and cinchonidine:
"Caution: Discontinue use if deafness, skin rash, visual disturbances (eye trouble) or other serious symptoms appear."

23. Preparations containing silver salts:
"Caution: Prolonged or frequent use of this preparation may result in permanent discoloration of the skin and mucous membranes."

24. Preparations sold under representations relating to coughs due to colds:

"Important: Persistent coughs may indicate the presence of a serious condition. Do not use this preparation when the cough has persisted for 10 days without securing competent advice."

25. Preparations containing mercury intended for administration by mouth or as douches:

"Warning: The prolonged or frequent use of this preparation or the use of amounts in excess of the prescribed directions may cause serious mercury poisoning."

26. Rubefacients, or irritants such as ammonia, arnica, cantharides, capsicum, chloroform, ether, methyl salicylate, pepper, mustard, or turpentine oil intended for surface application:

"Caution: This preparation may irritate the skin, particularly if applied with rubbing. Avoid getting it into the eyes or on mucous membranes."

27. Chrysarobin or Goa Powder:
"Caution: The use of this product over large skin areas may cause kidney irritation.

"Warning: Keep away from the eyes."

28. Digitalis, squill, strophanthus, or other pharmacologically related drugs in therapeutically effective proportions:

"Note: Potent doses of these drugs have an accumulative action and may lead to disastrous effects upon the heart and circulation. They should be used only under the direct supervision of a qualified physician.

"Caution should be exercised in using this preparation, particularly if

the patient has had digitalis, squill, strophanthus, ouabain or similar drug within the preceding three weeks.

"The appearance of anorexia (loss of appetite), nausea, vomiting, headaches or heart irregularities (palpitation) is often an early sign of full digitalization or overdosage. When such symptoms appear do not continue the use of this preparation without consulting the physician."

FAIR PRACTICES AND FOOD AND DRUG ACT

Summary

The Food and Drug Administration, through its nationwide facilities; provides a variety of services to protect the consumer and honest businessman from that small minority who adulterate and misbrand their products and generally engage in corner-cutting.

It sets standards of quality and identity of product and fill of container. Modern laboratories are maintained, staffed with skilled scientists who engage in a wide variety of tests and research so that the consumer may be protected in the use of foods, drugs, and cosmetics.

Not only is the consumer protected, but the competitive standards of the honest businessman are strengthened and fostered by the vigilance of the Food and Drug Administration in its fight against those who practice fraud and deception.

TO MANUFACTURERS, PACKERS AND DISTRIBUTORS OF COSMETICS

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Food and Drug Administration, Washington, D.C.

A survey made by the Federal Food and Drug Administration in planning a regulatory program in the enforcement of subsection 602 (A) of the Federal Food, Drug, and Cosmetic Act indicates the probability that a substantial proportion of the cosmetic industry has not realized that certain names and statements which have long been employed in the labeling of cosmetics may contravene requirements of the statute which have now become effective.

The extent to which the use of such claims which may be regarded as false and misleading prevails suggests the propriety of a general notice to the trade to encourage appropriate label revision. It is, of course, not practicable to list all the claims that may be unwarranted; the following,

however, are typical examples of some that are regarded as false or misleading.

Contour cream	Hair restorer
Crow's-foot cream	Circulating cream
Deep-pore cleaner	Enlarged-pore preparations
Depilatories for the permanent removal of hair	Hair-revitalizing preparations
Products represented as depilatories, but which merely bleach the hair	Muscle oil
Eyelash grower	Nourishing cream
Eye-wrinkle cream	Pore paste
Hair color restorer	Skin conditioner
Hair grower	Skin firm
Nail grower	Skin food
Nonallergic products	Skin texture preparations
Peroxide creams	Skin tonic
Rejuvenating cream	Stimulating cream
Scalp food	Tissue cream
	Wrinkle cream
	Cosmetics represented as valuable because of their vitamin content

A number of preparations have also been encountered which appear to be misbranded because they are represented as containing ingredients not actually present or present in insignificant proportion.

The designation of a product by the name of one ingredient, to the exclusion of all others, may also result in misbranding. Paragraph (b) under section 602 (A) of the general regulations for the enforcement of the Food, Drug and Cosmetic Act provides in part that "the labeling of a cosmetic which contains two or more ingredients may be misleading by reason (among other reasons) of the designation of such cosmetic in such labeling by a name which includes or suggests the name of one or more but not all such ingredients."

CLASSIFIED DIRECTORY SOURCES OF SUPPLY

Local wholesale or jobbing houses are the best sources of supply for chemicals bought in smaller quantities.

Classified Telephone Directories of each state have various listings of equipments, various supplies, containers, chemicals, etc. Almost all public libraries in the cities have *Thomas' Register of American Manufacturers* in three volumes which can be of assistance in many ways. Reference to these volumes may simplify special problems on products, equipment, etc.

The *Chemical Week Buyers' Guide* published by McGraw-Hill, New York City, is helpful for buyers of raw materials, chemicals, equipment and containers in the chemical process industries.

For supplies in large lots which cannot conveniently be obtained locally, the following DIRECTORY should be consulted.

ABOPON:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

A clear water-white transparent liquid of heavy viscosity. Completely soluble in water, also soluble to a certain extent in glycerin; insoluble in alcohol, oils and solvents; suggested for the manufacture of hair-waving solutions free from gums; requires no preservatives.

ABRASIVE, (Pulverized Feldspar; Diatomaceous Earth; Tripoli, Etc.):

Carborundum Co., Box 32, Akron, Ohio

Composition Materials Co., 25 W. 43rd St., New York 36, N.Y.

DuBois Co., 1120 W. Front St., Cincinnati, Ohio

Harshaw Chemical Co., 1945 E. 97 St., Cleveland 6, Ohio

ABSORPTION BASES:

Dominion Products., 10-40 Dr., Long Island City 1, N.Y.

Floridin Co., P.O. Box 989, Tallahassee, Fla.

"Falba" by Pfaltz & Bauer, Empire State Bldg., New York, N.Y.
Parachol by Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

ACETATE:

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York 17, N.Y.
Distillation Products Industries, 755 Ridge Rd. W., Rochester, N.Y.
Dow Chemical Co., Midland, Mich.
Allied Chem. & Dye Corp., Solvay Process Division, 61 Broadway, New York 6, N.Y.

ACETIC ACID:

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York, N.Y.
John A. Chew, 60 E. 42nd St., New York, N.Y.
Mallinckrodt Chemical Works, 2nd & Mallinckrodt Streets, St. Louis, Mo.
Merck & Co., Rahway, N.J.

ACETONE:

Celanese Corp. of America, Chemical Division, 180 Madison Ave., New York 16, N.Y.
Commercial Solvents Corp., 260 Madison Ave., New York 16, N.Y.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland 6, Ohio
Merck & Co., Rahway, N.J.

ACETOPHENETIDINE (PHENACETIN):

Dow Chemical Co., Midland, Mich.
Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Monsanto Chemical Co., 1700 S. 2nd St., St. Louis 4, Mo.

ACETYL SALICYLIC ACID:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Also *Wholesale Drug Supply Houses* in larger cities.

ACID, ASCORBIC:

Hoffmann-LaRoche Inc., Nutley, N.J.
Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Sterwin Chemical Inc; 1450 Broadway, New York 18, N.Y.

ACID, PHOSPHORIC, 90% TECH. GRADE, ETC.:

Barclay Chemical Co., 75 Varick St., New York 13, N.Y.

Thompson-Hayward Chemical Co., 2915 Southwest Blvd., Kansas City 8, Mo.

ACID, TARTARIC:

Harshaw Chemical Co., 1945 E. 97th St., Cleveland 6, Ohio

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

ACIMUL:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

ACTIVE INGREDIENT:

Atlas Powder Company, Wilmington 99, Del.

AGGREGATE:

See Local Building Supply Dealers.

AGITATORS: (MIXERS) POWER DRIVEN.

Abbe Engineering Co., 50 Church St., New York, N.Y.

Mixing Equipment Co., 139 Mt. Read Blvd., Rochester, N.Y.

ALCOHOL, ETHYL, PURE AND ALL FORMS OF DENATURED:

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York 17, N.Y.

Commercial Solvents Corp., 260 Madison Ave., New York 16, N.Y.

Griffin Chemical Co., 1141 S. 14th St., Richmond, Cal.

Republic Chemical Corp., 94 Beekman St., New York, N.Y.

Shell Chemical Corp., 380 Madison Ave., New York 17, N.Y.

ALCOHOL, ISOPROPYL, 91%, 95% S.D. # 39, 99%, ETC. (ALL FORMS):

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York, N.Y.

Merck & Co., Rahway, N.J.

Republic Chemical Corp., 94 Beekman St., New York, N.Y.

ALDO 28, 33, :

Glyco Products Co., Inc., 350 Fifth Ave., New York, N.Y.

ALKANET AND CHLOROPHYL, OIL SOLUBLE:

Fritzsche Bros. Inc., 76 Ninth Ave., New York 11, N.Y.

Hilton Davis Chemical Co., 2235 Langdon Farm Rd., Cincinnati, Ohio

ALKYL ARYL SULFONATES (See under SUDS-BOOSTERS) (VIRIFOAM A):

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

ALUM:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

Phillips & Jacobs Inc., 622 Race St., Philadelphia 6, Pa.

Republic Chemical Corp., 94 Beekman St., New York, N.Y.

ALUMINUM CHLORIDE:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

New York Quinine & Chemical Works, 50 Church St., New York 7, N.Y.

Republic Chemical Corp., 94 Beekman St., New York, N.Y.

ALUMINUM HYDROXIDE GEL, PASTE FORM:

Blockson Chemical Co., Joliet, Ill.

Diamond Alkali Co., 300 Union Commerce Bldg., Cleveland, Ohio

Hilton Davis Chemical Co., 2235 Langdon Farm Road, Cincinnati, Ohio

Westvaco Chemical Div.; Food Machinery & Chem. Co., 161 E. 42 St., New York 17, N.Y.

ALUMINUM METAL, TURNING OR PUNCHING:

Belmont Smelting & Refining Works, 322 Belmont Ave., Brooklyn 7, N.Y.

New Jersey Zinc Co., 160 Front St., New York, N.Y.

ALUMINUM SULFATE NF:

General Chemical Div., 40 Rector St., New York 6, N.Y.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

Phillips & Jacobs Inc., 622 Race St., Philadelphia, Pa.

AMERCHOL L-101:

See firms under "Modulan."

AMINOACETIC ACID:

Aceto Chemical Co., 40-40 Lawrence St., Flushing 54, Long Island City, N.Y.

Benzol Products Co., 237 South St., Newark 5, N.J.

Chemo Puro Mfg. Corp., 150 Doremus Ave., Newark 5, N.J.

AMMONIA, 28%, ANHYDROUS, ETC.:

Allied Chemical and Dye Corp., Nitrogen Div., 61 Broadway, New York 6, N.Y.

Armour Chemical Division, 1355 W. 31st St., Chicago 9, Ill.

Howe & French, 99 Broad St., Boston 10, Mass.

Los Angeles Chemical Co., 2196 Kurtz St., San Diego, Cal.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

Spencer Chemical Co., Dwight Bldg., Kansas City, Mo.

AMMONIUM CHLORIDE, COMMERCIAL:

American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, New York 20, N.Y.

Chemical Manufacturing Co., Inc., 444 Madison Ave., New York 22, N.Y.

Howe & French, 99 Broad St., Boston 10, Mass.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

AMMONIUM CHLORIDE, TECH. GRANULAR:

Geo. Callahan & Co. Inc., Closter, N.J.

General Chemical Division, Allied Chem. & Dye Corp., 40 Rector Street, New York, N.Y.

Allied Chem. & Dye Corp., Solvay Process Div., 61 Broadway, New York 6, N.Y.

AMMONIUM NITRATE, FERTILIZER OR TECH. GRADE:

J. T. Baker Chemical Co., Phillipsburg, N.J.

Barrett Division, 40 Rector St., New York 5, N.Y.

Phillips Chemical Co., Bartlesville, Okla.

AMMONIUM STEARATE ANHYDROUS:

An ammonia soap free from ammonia odor. A hard wax-like emulsifying base, dispersible in hot water. Replaces sodium and potassium stearates where high alkalinity is undesirable. Melting point 74–76°C. Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo. Warwick Chemical Co., 10 St. & 44 Ave., Long Island City 1, N.Y.

ANILIN COLORS:

Dow Chemical Co., Midland, Mich.

Merck & Co., Rahway, N.J.

Republic Chemical Corp., 94 Beekman St., New York 38, N.Y.

ANISE SEED:

S. B. Penick & Co., 50 Church St., New York 8, N.Y.

Also local "Wholesale Drug Supply Houses" in large cities.

AQUAPHOR (OINTMENT ABSORBING BASE):

Duke Laboratories Inc., Long Island City, N.Y.

AQUARESIN GMC-GLYCOL BORI-BORATE:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

A heavy viscous odorless liquid. Suggested as a mild astringent also for the manufacture of concentrated hair-waving solutions.

ARLACEL 20, 83, ETC.:

Atlas Powder Company, Wilmington 99, Del.

AROMATIC POWDER:

Eli Lilly Co., Indianapolis, Ind.

Also local "Wholesale Drug Supply Houses."

ASBESTOS:

American Smelting & Refining Co., 120 Broadway, New York, N.Y.

Johns-Manville Co., 22 E. 40th St., New York 16, N.Y.

Western Chemical & Manufacturing Co., 3270 E. Washington Blvd.,
Los Angeles 23, Cal.

ASCORBIC ACID:

See firms under "Acid, Ascorbic."

ASPHALT (ASPHALTUM):

Crowley Tar Products Corp., 271 Madison Ave., New York 16, N.Y.

Industrial Raw Materials Corp., 575 Madison Ave., New York 22, N.Y.

Allied Asphalt Mineral Corp., 217 Broadway, New York 7, N.Y.

Barrett Division, 40 Rector St., New York 6, N.Y.

ASPHALTUM:

C. P. Hall Co., 414-418 S. Broadway, Akron 8, Ohio

Johns-Manville, 22 E. 40th St., New York 16, N.Y.

See also firms above.

ATLAS G-1050; G-1425; G-2859 (G-1425 LANOLIN DERIVATIVE):

Atlas Powder Company, Wilmington 99, Del.

ATOMIZER, PRESSURE BOMBS "AEROSOLS":

Aeropak, Inc., 3005 W. 47th St., Chicago 32, Ill.
Chemical Insecticide Corp., 129 Montague St., Brooklyn, N.Y.
Virginia Smelting Co., W. Norfolk, Va.

BAKING POWDER MATERIALS:

General Chemical Co., 40 Rector St., New York 6, N.Y.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland 6, Ohio
Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
New York Quinine & Chemical Works, 50 Church St., New York 7, N.Y.

BALSAMS, FIR, PERU, ETC.:

Fritzsche Bros., 76 Ninth Ave., New York, N.Y.
S. B. Penick & Co., 50 Church St., New York 8, N.Y.
Republic Chemical Corp., 94 Beekman St., New York, N.Y.

BENADRYL HYDROCHLORIDE:

Park Davis & Co., Detroit, Mich.

BENTONITE (VOLCLAY BENTONITE):

American Colloid Co., 813 Merchandise Mart Plaza, Chicago 54, Ill.
New York Quinine & Chemical Works, 50 Church St., New York 7, N.Y.
Republic Chemical Corp., 94th Beekman St., New York, N.Y.
United Clay Mines Corp., Prospect & Oakland Sts., Trenton 6, N.J.

BENTONITE CLAY SUITABLE FOR INCORPORATION IN A LIQUID WHITE SHOE POLISH:

Same firms as for "Bentonite (Volclay Bentonite)"

BENZOCAINE:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
New York Quinine Chemical Works, 50 Church St., New York 7, N.Y.
Republic Chemical Corp., 94 Beekman St., New York, N.Y.

BENZOIC ACID:

Carus Chemical Co., 1375 Eighth St., La Salle, Ill.
Heyden Chemical Corp., 342 Madison Ave., New York 17, N.Y.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Monsanto Chemical Co., 1700 S. 2 St., St. Louis 4, Mo.

BENZOL:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Phillips & Jacobs Inc., 622 Race St., Philadelphia 6, Pa.
Republic Chemical Corp., 94 Beekman St., New York, N.Y.
Shell Oil Co., 50 W. 50th St., New York, N.Y.

BENZOL & PETROLEUM NAPHTHA SP. GR. 60° 0.730, (BENZINE), ETC.:

American Mineral Spirits Co., Mountain Ave., Murray Hill, N.J.
Baird Chemical Corp., 10 W. 33 St., New York 1, N.Y.
DeMert & Dougherty, 3001 W. 47 St., Chicago 32, Ill.
Kolon Trading Co., 32 Broadway, New York 4, N.Y.
Oil Chemical Products, 295 Madison Ave., New York 17, N.Y.

BISMUTH SALTS, SUBGALLATE, SUBNITRATE, CARBONATE, SUBCARBONATE, SUBSALICYLATE, ETC.:

J. T. Baker Chemical Co., N. Broad St., Phillipsburg, N.J.
Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
New York Quinine & Chem. Works, 50 Church St. New York 7, N.Y.
Pfizer, Charles & Co., 630 Flushing Ave., Brooklyn 6, N.Y.

BOILED LINSEED OIL:

See listings under "Linseed Oil."

BORACIC ACID:

Kraft Chemical Co., 917 W. 18 St., Chicago, Ill.
Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.

BORAX, DECAHYDRATE, HYDRATED, POWDERED:

American Potash & Chemical Co., 99 Park Ave., New York 16, N.Y.
Stauffer Chemical Co., 380 Madison Ave., New York 17, N.Y.

BORIC ACID:

See listings under "Borax."

BOTTLES, GLASS, CAPS, PLASTIC CAPS, ETC.:

Anchor-Hocking Glass Corp., Lancaster, Ohio
Armstrong Cork Co., Liberty St., Lancaster, Pa.
Continental Can Co., 100 E. 42 St., New York, N.Y.
Corning Glass Works, Corning, N.Y.
Imco Container Corp., 350 Fifth Ave., New York, N.Y.
Owens-Illinois Glass Co., Toledo 1, Ohio

BOXES, FOLDING, POWDER, PAPER, PAPER CANS ALSO SIFTER TOP CANS:

Drug Package Inc., 241 Glasgow Ave., St. Louis, Mo.

BOXES, METAL:

Continental Can Co., 100 E. 42nd St., New York, N.Y.
Reynolds Metals Co., 19 E. 47 St., New York 17, N.Y.

BOXES, OINTMENT:

Drug Package Inc., 241 Glasgow Ave., St. Louis, Mo.
Pictorial Paper Package Corp., Aurora, Ill.

BREWER'S YEAST:

See firms under "Yeast, Brewer's."

BROMO ACID G, Y, ETC.:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

Bromo Acid G is a chemically pure tetrabrom fluorescein, for the manufacture of indelible lipsticks, free from objectionable odor and taste, ground to exceptional fineness and free from any tendency to lump.

Bromo Acid Y is similar to Bromo Acid G but a yellowish cast to overcome the bluish aftertone in certain types of lipsticks.

BROWN DYE, PETROLEUM:

Allied Chem. & Dye Corp., National Aniline Div., 40 Rector St., New York, N.Y.
Atlantic Chemical Corp., 153 Prospect St., Passaic, N.J.

BUTYL "CARBITOL":

Carbide & Carbon Chemicals Co., 230 N. Michigan Ave., Chicago 1, Ill.

BUTYL "CELLOSOLVE":

Carbide & Carbon Chemicals Co., 230 N. Michigan Ave., Chicago 1, Ill.
Distillation Products Industries, 755 Ridge Rd. W., Rochester, N.Y.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Matheson, Coleman & Bell, 14101 Montgomery Rd., Norwood (Cincinnati), Ohio

Merck & Co., Rahway, N.J.

United States Industrial Chemical Co. Div., 99 Park Ave., New York, N.Y.

BUTYRIC ACID, EDIBLE AND BUTYRIC ETHER:

Fritzsche Bros., 76-9th Ave., New York, N.Y.

Magnus, Mabee & Reynard Inc., 16 Desbrosses St., New York, N.Y.

CAFFEINE:

Same sources as supply "Sodium Benzoate."

CAKE FLOUR:

American Flours Inc., Newton, Kansas.

Eagle Roller Mill, New Ulm, Minn.

Igleheart Bros. Div., General Food Corp., Evansville, Ind.

Pillsbury Mills, Minneapolis, Minn.

CALCIUM CARBONATE, PREC.:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

See other listings under "Calcium Chloride."

CALCIUM CHLORIDE, FLAKE:

Barada & Page, Guinotte & Michigan Avenues, Kansas City 20, Mo.

Dow Chemical Co., Midland, Mich.

Republic Chemical Corp., 94 Beekman St., New York 38, N.Y.

Wyandotte Chemical Corp., Wyandotte, Mich.

CALCIUM GLYCEROPHOSPHATE:

J. T. Baker Chemical Co., Phillipsburg, N.J.

Heyden Chemical Corp., 342 Madison Ave., New York, N.Y.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

CALCIUM HYPOCHLORITE:

Doe & Ingalls Inc., 56 Garden St., Everett 49, Mass.

Mathieson Chemical Corp., Mathieson Bldg., 10 Light St., Baltimore 3, Md.

Republic Chemical Corp., 94 Beekman St., New York 38, N.Y.

CALCIUM PANTOTHENATE:

See listings under "Vitamins A & D, All Forms."

CALOMEL:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
New York Quinine & Chem. Works, 50 Church St., New York 7, N.Y.
Charles Pfizer & Co., 630 Flushing Ave., Brooklyn, N.Y.

CAMPHOR:

See listings under "Thymol, Menthol, Eucalyptol, Etc."

CAMPHOR LINIMENT:

Eli Lilly Co., Indianapolis, Ind.
E. R. Squibb & Son Co., 745 5th Ave., New York, N.Y.
Also "Drug Supply Houses" in all large cities.

CANS, METAL END PAPER CANS:

R. C. Can Co., 9430 Page Blvd., St. Louis 14, Mo.
Continental Can Co., 100 E. 42nd St., New York, N.Y.

CANS, PAPER, SIFTER TOP:

See firms under "Boxes, Folding, Powder, Paper, Etc." Also below.

CANS, TIN SCREW CAP, FRICTION TOP, METAL, AEROSOL, ETC.:

American Can Co., 100 Park Ave., New York, N.Y.
Basic Material Supply Co., 27 William St., New York, N.Y.
Bridgeport Brass., Bridgeport, Conn.
Continental Can Co., 100 E. 42nd St., New York, N.Y.

CANTON SOY:

American Lecithin Co., 57-01 32nd Ave., Woodside, Long Island, N.Y.
Kellogg & Sons Inc., Spencer, Buffalo, N.Y.

CARAMEL (COLORING):

W. J. Bush & Co., 19 W. 44th St., New York, N.Y.
Penick & Ford, 420 Lexington Ave., New York, N.Y.
Sethness Products Co., N. Lake Shore Dr., Chicago, Ill.
Whitehall Food Manufacturing Corp., 367 W. Broadway, New York, N.Y.

CARBITOL; CARBITOL SOLVENT, ETC.:

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York 17, N.Y.
American-British Chem. Supplies, 180 Madison Ave., New York, N.Y.
Dow Chemical Co., Midland, Mich.

CARBOLIC ACID OR PHENOL:

Crowley Tar Products Corp., 271 Madison Ave., New York, N.Y.
Dow Chemical Co., Midland, Mich.
Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Republic Chemical Corp., 94 Beekman St., New York, N.Y.

CARBON, BLACK:

Barclay Chem. Co., 75 Varick St., New York 13, N.Y.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio
United Carbon Co., Charleston 27, W. Virginia

CARBON TETRACHLORIDE:

City Chemical Corp., 132 W. 22 St., New York 11, N.Y.
Doe & Ingalls, 56 Garden St., Everett 49, Mass.
Mallinckrodt Chemical Works, 3600 N. 2nd St., St. Louis, Mo.
Merck & Co., Rahway, N.J.

CARBOWAX 1000 MONO STEARATE; 1000 DISTEARATE; COMPOUND 1500; COMPOUND 4000, ETC.:

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York 17, N.Y.
Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

CARBOXYMETHYLCELLULOSE:

Hercules Powder Co., 900 Market St., Wilmington 99, Del.
Dow Chemical Co., Midland, Mich.
S. B. Penick & Co., 50 Church St., New York, N.Y.

CARDAMON SEED, POWDERED:

S. B. Penick & Co., 50 Church St., New York, N.Y.
Also local "Drug Houses" in large cities.

CARNAUBA WAX No. 1:

Warwick Wax Co., 10th St., 44 Ave., Long Island City, N.Y.
Also same firms as for "Waxes, Beeswax, Carnauba, Etc."

CAROTENE:

Barnett Laboratories, 6256 Cherry Ave., Long Beach 5, Calif.
International Foodcraft Corp., 184 N. 8 St., Brooklyn, N.Y.
Mann Research Labs., 136 Liberty St., New York, N.Y.
Nutritional Research Associates, Inc., 208 Broad St., South Whitley,
Ind.

CARTONS, FOLDING, PAPER:

Associated Folding Box Co., 240 Canal St., Lawrence, Mass.
Denison Mfg. Co., Framingham, Mass.
Industrial Container & Paper Corp., 1717 W. 74th St., Chicago, Ill.
New York Box & Label Works, Union Hill, N.J.

CASCARA SAGRADA EXTRACT (POWDERED):

Eli Lilly & Co., Indianapolis, Ind.
Park Davis Co., Detroit, Mich.

CASEIN (LACTIC ACID) INEDIBLE, RESIN DISPERSION:

American-British Chem. Supplies, 180 Madison St., New York, N.Y.
Borden Co. Chem. Division, 350 Madison Ave., New York, N.Y.
Kraft Chemical Co., 917 W. 18th St., Chicago, Ill.
National Casein Co., 601 W. 80th St., Chicago, Ill.
See also firms under "Resin Dispersions."

CASTILE SOAP:

Armour Co., Soap Dept., 1355 W. 31st St., Chicago, Ill.
Colgate-Palmolive Co., 300 Park Ave, New York, N.Y.
Hercules Powder Co., 900 Market St., Wilmington, Del.

CASTOR OIL, BLOWN:

Heavy-bodied oil produced by blowing air through castor oil until it is partly oxidized, used in polishes, etc. Ordinary castor oil will not mix with mineral oils, but blown castor oil will.
The Baker Castor Oil Co., 40 Avenue A, Bayonne, N.J.
Jacques Wolfe & Co., Passaic, N.J.
Spencer Kellogg & Sons, Buffalo 5, N.Y.

CASTOR OIL, SULFONATED:

Pacific Vegetable Oil Corp., 62 Townsend St., San Francisco, Cal.
Sherwin Williams Co., 260 Madison Ave., New York, N.Y.
Also firms above.

CAUSTIC SODA:

Same firms as for "Soda Ash."

CELERY SEED & GARLIC:

City Local Markets.

CELLOSIZES WSLM:

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York 17, N.Y.

CEMENTS, INCODEL, INCOR:

International Cement Corp., Philadelphia, Pa., Indianapolis, Ind.,
Kansas City, Mo.

CERAFLUX:

Glyco Products Co. Inc., 350 Fifth Ave., Brooklyn, N.Y.

A specially treated highly refined paraffin wax free from the typical paraffin wax odor; practically noncrystalline. It replaces paraffin wax particularly in cold creams and liquefying cleansing creams.

CERESIN WAX:

See listings under "Waxes."

CERULOSE (STARCH):

American Maize Products Co., 250 Park Ave., New York, N.Y.

Corn Products Refining Co., 17 Battery Place, New York 4, N.Y.

Merck & Co., Rahway, N.J.

National Starch Products, 270 Madison Ave., New York, N.Y.

A. E. Staley Mfg. Co., Box 151 Decatur, Ill.

CETYL ALCOHOL, FLAKES:

American-British Chem. Supplies, 180 Madison Ave., New York, N.Y.

Distillation Products Industries, 755 Ridge Rd. W., Rochester, N.Y.

E. I. Du Pont De Nemours & Co., Polychem., Wilmington, Del.

Humphrey-Wilkinson, Devine St., New Haven, Conn.

Also listings under "Alcohol Isopropyl."

CHALK, PREPARED & PRECIPITATED:

Dow Chemical Co., Midland, Mich.

Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio

Industrial Minerals & Chemical Co., 6 & Gilman, Berkeley, Cal.

Whittaker, Clark & Daniels, 260 W. Broadway, New York 13, N.Y.

CHEMICALS, MEDICINAL, TECHNICAL, ANALYTICAL, ETC.:

Doe & Ingalls, 56 Garden St., Everett 49, Mass.
Dow Chemical Co., Midland, Mich.
Mallinckrodt Chemical Works, 3600 N. 2nd St., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Squibb E. R. & Sons, New York, N.Y.

CHLORETONE:

See listings under "Chlorobutanol."

CHLORINATED SOLVENT:

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York, N.Y.
De Mert & Dougherty, 3301 W. 47th St., Chicago, Ill.
Dow Chemical Co., Midland, Mich.
E. I. Du Pont De Nemours & Co., Wilmington, Del.

CHLOROBUTANOL (CHLORETONE):

Benzol Products Co., 237 South Street, Newark, N.J.
R. W. Greeff & Co., 10 Rockefeller Plaza, New York, N.Y.
Merck & Co., Rahway, N.J.
New York Quinine & Chem. Works, 50 Church St., New York 7, N.Y.

CHLOR-THYMOL (CHLOROTHYMOL):

Distillation Products Industries, 755 Ridge Ro. West, Rochester, N.Y.
Merck & Co., Rahway, N.J.
New York Quinine & Chem. Works, 50 Church St., New York 7, N.Y.

CHOCOLATE LIQUOR:

Blommer Chocolate Co., 600 W. Kinzie St., Chicago, Ill.
Hershey Chocolate Corp., Hershey, Pa.
Rockwood & Co., 88 Washington Ave., Brooklyn, N.Y.
Walter Baker, Chocolate & Cocoa, 250 Park Ave., New York, N.Y.
Wilbur-Suchard Chocolate Co. Inc., Lititz, Pa.

CHOLESTRIN (C.P.):

International Chem. Labs., New York, N.Y.
Merck & Co., Rahway, N.J.
Wilson Labs., 4221 S. Western Ave, Chicago, Ill.

CHOLINE BITARTRATE:

See listings under "Vitamins A & D, All Forms."

CLAY:

Doe & Ingalls, 56 Garden St., Everett 49, Mass.
English China Clays Sales Corp., 551-5th Ave., New York, N.Y.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio
Illinois Minerals Co., 807½ Washington Ave., Cairo, Ill.
L. A. Solomon & Bros., 216 Pearl St., New York, N.Y.
United Clay Mines Corp., Prospect & Oakland Streets, Trenton, N.J.

CLEANER'S NAPHTHA:

See firms under "Naphtha."

COCOA BUTTER, ODORLESS, ETC.

Doe & Ingalls, 56 Garden St., Everett 49, Mass.
E. F. Drew & Co., 15 E. 26th St., New York 10, N.Y.
Kraft Chem. Co., 917 W. 18th St., Chicago, Ill.
Republic Chemical Corp., 94 Beekman St., New York 38, N.Y.
Spencer Kellogg & Sons, Buffalo, N.Y.

COCOA POWDER:

Same firms as for "Chocolate Liquor."

COCONUT OIL:

Same firms as for "Cocoa Butter."

COCONUT OIL FATTY ACIDS, 210, ETC.:

See listings for "Cocoa Butter."

COLLAPSIBLE TUBES:

Bradley Container Corp., 100 Park Ave., New York, N.Y.
Arthur S. La Pine & Co., 6001 Knox Ave., Chicago, Ill.
A. H. Wirz, Inc., 4 & Dudley Sts., Chester, Pa.

COLLODION:

Hilton Davis Chemical Co., 2235 Langdon Farm Rd., Cincinnati, Ohio
Mallinckrodt Chemical Works, 3600 N. 2nd St., St. Louis, Mo.
Merck & Co., Rahway, N.J.

COLLOID MILLS, HOMOGENIZERS, MIXERS, EPPENBACH MIXERS:

J. H. Day Co., 4932 Beech St., Cincinnati, Ohio
Mixing Equipment Co., Rochester, N.Y.
Troy Engine & Machinery Co., Parsons Bldg., Troy, Pa.
See other listings under "Machinery, Mixing, Sifting, Etc."

COLORS, FOR SHOE POLISHES:

Ciba Co., 627 Greenwich St., New York, N.Y.
Federal Color Labs. Inc., 4633 Forest Ave., Cincinnati, Ohio
Filo Color & Chemical Corp., 347 Madison Ave., New York, N.Y.
National Aniline Division Allied Chemical & Dye Corp., 40 Rector St.,
New York, N.Y.

COPPER ARSENITE:

Barclay Chemical Co., 75 Varick St., New York, N.Y.
Mallinckrodt Chemical Works, 3600 N. 2nd St., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Phillips & Jacobs Inc., 622 Race St., Phila., Pa.

COPPER SULFATE:

Same firms as above, also:
General Chemical Co., 40 Rector St., New York, N.Y.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio
Republic Chemical Corp., 94 Beekman St., New York, N.Y.

CORKS:

Armstrong Cork Co., W. Liberty St., Lancaster, Pa.

CORN SUGAR:

American Maize Products Co., 250 Park Ave., New York 5, N.Y.
Clinton Foods Inc., Clinton, Iowa
Corn Products Sales Co., 17 Battery Place, New York 4, N.Y.

COSMETIC COLORS:

A series of colors suitable for cosmetic purposes. Water Soluble (Aqua-farb Colors), Oil Soluble (Glycocolors), Nail Polish Colors.
Fritzsche Bros., 76-9th Ave., New York, N.Y.
General Color Co., 24 Avenue B, Newark, N.J.
Hilton Davis Chemical Co. Division, 2235 Langdon Farm Rd., Cincinnati, Ohio
H. Kohnstamm & Co. Inc., 11-13 E. Illinois St., Chicago, Ill.
Sherwin Williams Co., 260 Madison Ave., New York, N.Y.

COTTONSEED OIL:

Armour Chemical Division, 1355 W. 31st St., Chicago, Ill.
E. F. Drew & Co., 15 E. 26 St., New York, N.Y.
Pacific Vegetable Oil Corp., 62 Townsend St., San Francisco, Cal.
Proctor & Gamble, Cincinnati, Ohio

Republic Chemical Corp., 94 Beekman St., New York, N.Y.
Southern Cottonseed Oil Co., 11 Broadway, New York, N.Y.
Welch, Holme & Clark Co., Hudson St., New York, N.Y.

CREAM OF TARTAR:

Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio
Mallinckrodt Chemical Works, 3600 N. 2nd St., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Western Bakers Supply Co., 4969 Colorado Blvd., Denver, Col.

CREMOGEN A:

Dominion Products, 10-40 Dr., Long Island City, N.Y.
Floridin Co., P.O. Box 989, Tallahassee, Fla.

CREOLIN, PEARSON TYPE:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Any "Wholesale Drug Supply Houses" in large cities

CREOSOTE OIL, CRESOL, CRESYLIC ACID, ETC.:

Barrett Division, 40 Rector St., New York, N.Y.
Merck & Co., Rahway, N.J.
Reilly Tar & Chemical Corp., 1615 Merchant Bank Bldg., Indianapolis, Ind.
Republic Chemical Corp., 94 Beekman St., New York, N.Y.

CYLINDER OIL, LIGHT:

See listings under "Mineral Oils."

D.D.T.:

Chemical Insecticide Corp., 129 Montague St., Brooklyn, N.Y.
E. I. Du Pont De Nemours & Co., Wilmington, Del.
Michigan Chemical Corp., 500 N. Bankson, St. Louis, Mich.
S. B. Penick & Co., 50 Church St., New York, N.Y.
Wyandotte Chemical Corp., Wyandotte, Mich.

DERAMIN:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.
A light-colored odorless liquid; emulsifying base for the manufacture of vanishing creams, etc.

DERRIS RESIN:

Derris Inc., 79 Wall St., New York, N.Y.

S. B. Penick & Co., 50 Church St., New York, N.Y.

DEXTROSE (CANE SUGAR), CERULOSE, ALL FORMS:

American Sugar Refining Co., 120 Wall St., New York, N.Y.

Great Western Sugar Co., Denver, Colorado

Refined Syrups & Sugar Co., Yonkers, N.Y.

DIASTASE:

Merck & Co., Rahway, N.J.

Roman & Haas Co., Washington Sq., Philadelphia, Pa.

Roussel Corp., 155 E. 44th St., New York, N.Y.

DIBASIC AMMONIUM PHOSPHATE:

J. T. Baker Chem. Co., Phillipsburg, N.J.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

Monsanto Chemical Co., Phosphate Division, St. Louis, Mo.

DICHLORODIFLUOROMETHANE (FREON 12):

American Potash & Chem. Corp., 3033 W. 6th St., Los Angeles 54, Cal.

Dow Chemical Co., Midland, Mich.

General Chemical Division, 40 Rector St., New York 6, N.Y.

Mathieson Co., 932 Paterson Plank Rd. E., Rutherford, N.J.

DIGLYCOL LAURATE:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

A light-colored oily liquid, dispersible in water, soluble in oils, alcohol and hydrocarbon solvents; excellent emulsifying agent for oils; also recommended for hair dressings, brilliantines, etc., to replace castor oil.

DIHYDROSTREPTOMYCIN:

Bristol Labs. Inc., Syracuse, N.Y.

Heyden Chem. Corp., 342 Madison Ave., New York, N.Y.

Merck & Co., Rahway, N.J.

2,2'-DIHYDROXY-5,5'-DICHLORO DIPHENYL METHANOL:

Atlas Powder Company, Wilmington, Del.

DIMETHYL PHTHALATE:

Barclay Chem. Co., 75 Varick St., New York 13, N.Y.

Kay-Fries Chemicals Inc., 180 Madison Ave., New York 16, N.Y.

Monsanto Chemical Co., 1700 S. Second St., St. Louis, Mo.

DIPOTASSIUM HYDROGEN PHOSPHATE:

Same listings as under "Sodium Phosphate."

DIPROPYLENE GLYCOL SALICYLATE:

Colgate-Palmolive Co., 105 Hudson St., Jersey City, N.J.

DISODIUM HYDROGEN PHOSPHATE:

See listings under "Sodium Tripolyphosphate, Tetrasodium Pyroph; Etc."

DOLOMITIC LIMESTONE (ABRASIVE) POWDERED OR MARBLE DUST:

Austin White Lime Co., P.O. Box 53, Austin, Texas

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

DUPONOL D PASTE, G; LS; DUPONOL ST (TRIETHANOLAMINE COCONUT ALC. SULF.) ; DUP. WA PASTE (SODIUM COCONUT ALC. SULFATE) ; DUP. WAT (TRIETHANOLAMINE LAURYL SULF.) ; DUPONOL (SOD. LAURYL SULFATE) :

E. I. Du Pont De Nemours & Co. Inc., Wilmington, Del. U.S.A.

Glyco Products Co., 350 Fifth Ave., New York, N.Y.

DU PONT-NIGROSINE; DU PONT NIGROSINE SSJ POWDER; DU PONT NIGROSINE WSJ CRYSTALS OR PASTE; ETC.:

Same listings as above.

DYES, ALCOHOL SOLUBLE, ETC.:

E. I. Du Pont de Nemours & Co., Organic Chem. Dept., Dyes & Chem. Div., Wilmington 98, Del.

General Dyestuff Corp., 435 Hudson St., New York, N.Y.

National Aniline Div., Allied Chem. & Dye Corp., 40 Rector St., New York, N.Y.

EAROSOL PROPELLENTS, "GENETRONS" OR "FREONS":

General Chemical Division, Allied Chem. & Dye Corp., 40 Rector St., New York 6, N.Y.

E. I. du Pont de Nemours & Co., Wilmington, Del.

EGGS, DRIED, EGG YOLKS, EGG WHITES (ALBUMIN), ETC.:

Armour & Co., Stockyards, Chicago, Ill.

Land O' Lakes Creameries Inc., 220 N. E. Kennedy, Minneapolis, Minn.

Monark Egg Corp., Cherry & Third, Kansas City, Mo.

Swanson & Sons, C. A., 1202 Douglas St., Omaha, Nebraska

EMULSIFIERS, MECHANICAL:

Homogenizer Corp. Ltd., 636 Robertson Blvd., Los Angeles, Cal.
Maine Machine Works Ltd., 1230 E. 109 St., Los Angeles, Cal.
Tri-Homo Corp., 93 Highland Drive, Salem, Mass.

EPHEDRINE ALKALOID:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Republic Chemical Corp., 94 Beekman St., New York, N.Y.

ETHYL ACETATE, 85-88%, DENATURED GRADE, ETC.:

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York 17, N.Y.
Commercial Solvents Corp., 260 Madison Ave., New York 16, N.Y.
Eastman Chemical Products, Inc., Kingsport, Tenn.

ETHYL ALCOHOL; CD; CD2; CD13; CD14; ETC.:

Griffin Chemical Co., Richmond, Cal.
Republic Chemical Corp., 94 Beekman St., New York, N.Y.
Thompson-Hayward Chem. Co., 2915 Southwest Blvd, Kansas City, Mo.

ETHYLENE DICHLORIDE:

De Mert & Dougherty, 3001 W. 47th St., Chicago, Ill.
Dow Chemical Co., Midland, Mich.
Monsanto Chemical Co., Dallas, Tex.
Republic Chemical Corp., 94 Beekman St., New York, N.Y.

EUCALYPTOL:

See listings under "Thymol."

FATTY AMIDE CONDENSATES:

Antara Chemical Division, 435 Hudson St., New York 14, N.Y.
Emulsol Corp., 75 E. Wacker Dr., Chicago, Ill.
Jacques Wolf & Co., Passaic, N.J.

FERROUS GLUCONATE:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
New York Quinine & Chemical Works, 50 Church St., New York 7, N.Y.
Charles Pfizer & Co., 630 Flushing, Brooklyn, N.Y.

FLAVOR OIL:

See "Fruit Oils & Flavoring Materials."

FLAVOR, SPECIAL OILS:

See listings under "Perfume Oils."

FLEXORESIN BI:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

A synthetic resin melting at 63°C.; insoluble in water, soluble in waxes, oils, etc.; base for the manufacture of hair straighteners and fixers.

FLOUR SIFTING & WEIGHING MACHINERY:

Champion Machinery Co., Joliet, Ill.

FLOWER OR PINE PERFUME OILS, USED AS AEROSOL SPACE DEODORANT:

See firms under "Perfume Materials, Oils, Etc."

FLUID TOLU SOLUBLE:

Eli Lilly Co., Indianapolis, Indiana

Park Davis & Co., Detroit, Michigan

Local "Wholesale Drug Houses" in larger cities.

FLUORESCENT DYES, (Optical Bleaches, Incorporated in a Built Synthetic Detergent) for a household cleaner:

Request a dye which has not been patented for use in a built soap or syndet.

Ciba Co., 627 Greenwich St., New York, N.Y.

E. I. Du Pont de Nemours & Co., Wilmington 98, Del.

Geigy Dyestuffs Div., Geigy Chem. Corp., Yonkers, N.Y.

General Dyestuff Corp., 435 Hudson St., New York 14, N.Y.

National Aniline Allied Chem. & Dye Corp., 40 Rector St., New York, N.Y.

FOLIC ACID:

J. M. Baird Co., 254 W. 31st St., New York, N.Y.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

FOOD COLORS, ALL KIND (CERTIFIED):

Bates Chemical Co., Scottdale Rd., Landsdowne, Pa.

Fritzsche Bros. Inc., 76 9th Ave., New York, N.Y.

H. Konstamm & Co., Inc., 11-13 E. Illinois St., Chicago, Ill.
Magnus, Mabee & Reynard Inc., 16 Desbrosses St., New York, N.Y.

FOREIGN COSMETIC REPRESENTATIVES:

Atlas Powder Company, P.O. Box 159, Brantford, Canada
Oswald E. Boll, Seefeldstrasse 35, 3458/59, Zurich, Switzerland
Canada Colors & Chemicals Ltd., 1090 King Street W., Toronto, Canada
Carbide & Carbon Co., 3737 St. James Street, W., Montreal, Quebec, Canada
Comiel, Corse Concordia N. 8, 278-706, Milan, Italy
Glyco Products Co. Inc., 7 Idol Lane, Mansion House 8109, London EC3, England
H. D. Hachenburg, 46 Rue de la Consolation, 15.55.20, Brussels 3, Belgium
B. S. Hyde, 991 Bay St., Toronto, Canada
Kaisers Trading Co., 159 Lower Chitpore Rd., P.O. Box 2016, Calcutta, India
E. Landerholm, Stockholm 57-09-50, Huddinge, Sweden
S.A.R.L. Olibol, 25-27, Rue D'Astorg, Anjou 25-80, Paris 8E, France
Rodolfo Zoellner I, Casilla 9064, 494205, Santiago, Chile

FORMALDEHYDE, FORMALIN (40%) :

American-British Chemical Supplies, 180 Madison Ave., New York, N.Y.
Commercial Solvents Corp., 260 Madison Ave., New York, N.Y.
Doe & Ingalls, 56 Garden St., Everett, Mass.
Fallek Products Co., 163 Broadway, New York, N.Y.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio
Monsanto Chemical Co., Plastic Division, Springfield, Mass.
Phillips & Jacobs, 620-622 Race St., Phila., Pa.

FRUIT OILS AND FLAVORING MATERIALS:

Dodge & Olcott, 180 Varick St., New York, N.Y.
Dow Chemical Co., Midland, Mich.
Fries & Fries, 110 E. 70th St., Cincinnati, Ohio
Fritzsche Bros., 76 Ninth Ave., New York, N.Y.
H. Kohnstamm & Co. Inc., 11-13 E. Illinois St., Chicago, Ill.
S. B. Penick & Co., 50 Church St., New York, N.Y.
Seeley & Co., 1 Main St., Nyack, N.Y.

GELATIN, EDIBLE:

American Agricultural Chemical Co., 50 Church St., New York, N.Y.
Atlantic Gelatin Co. Division, General Foods Corp., Woburn, Mass.
Eastman Gelatin Corp., Peabody, Mass.
Swift & Co., U.S. Yards, Chicago, Ill.
Wilson & Co., U.S. Yards, Chicago, Ill.

GENTIAN POWDER:

S. B. Penick, 50 Church St., New York, N.Y.
Local "Wholesale Drug Houses" in larger cities.

GILSONITE:

Allied Asphalt & Mineral Corp., 217 Broadway, New York, N.Y.
Crowley Tar Products Corp., 271 Madison Ave., New York, N.Y.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio
Kraft Chemical Co., 917 W. 18th St., Chicago, Ill.

GINGER, OLEORESIN:

Eli Lilly & Co., Indianapolis, Ind.
Park Davis & Co., Detroit, Mich.

GINGER POWDER:

S. B. Penick & Co., 50 Church St., New York, N.Y.
Kraft Chemical Co., 197 W. 18th St., Chicago, Ill.

GLASS JARS, WIDE MOUTH, ETC.:

Ace Glass, Vineland, N.J.
Anchor-Hocking Glass Corp., Lancaster, Ohio
Corning Glass Co., Corning, N.Y.
Owens-Illinois Glass Co., Toledo, Ohio
Arthur F. Smith Co., 311 Alexander St., Rochester, N.Y.

GLUCOSE:

American Maize Products Co., 250 Park Ave., New York, N.Y.
Clinton Foods, Clinton, Iowa
Corn Products Refining Co., 17 Battery Place, New York, N.Y.
Penick & Ford Ltd. Inc., 420 Lexington Ave., New York, N.Y.
A. E. Staley Manufacturing Co., Decatur, Ill.

GLYCERIN:

Armour Chemical Division, 1355 W. 31st St., Chicago, Ill.
Glycerin Corp. of America, 36 W. 44th St., New York, N.Y.

Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio
Proctor & Gamble, Cincinnati, Ohio
Swift & Co., Union Stock Yards, Chicago, Ill.

GLYCEROL:

Aceto Chemical Co. Inc., 40-40 Lawrence St., Flushing, N.Y.
Celina Stearic Acid Co., 410 So. Ash St., Celina, Ohio
Darling & Co., 4204 S. Ashland, Chicago 9, Ill.

GLYCEROPHOSPHATE, CALCIUM, SODIUM, ETC.:

See firms under "Calcium Glycerophosphate."

GLYCERYL MONOOLEATE:

Atlas Powder Co., Wilmington 99, Del.
Glyco Products Co., 350 Fifth Ave., New York, N.Y.
Specialty Resins Co., 2801 Lynwood Rd., Lynwood, Cal.

GLYCERYL MONOSTEARATE:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

A cream colored, wax-like solid; melting point 54-56°C.; dispersible in hot water, forming stable emulsions on cooling; emulsifying agent for oils, waxes, solvents, etc. It is suggested for the manufacture of greaseless cold creams, etc. The addition of 1-2% glyceryl monostearate to vanishing creams, brushless shaving creams and other cosmetic preparations made with stearic acid will tend to eliminate breakdown due to freezing. A similar amount added to lipsticks, paste rouges, mascara, etc., will give smoothness and reduce sweating.

GLYCERYL TRISTEARATE; MONOSTEARATE, ETC.:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.
Kraft Chem. Co., 917 W. 18th St., Chicago, Ill.

White wax-like solid; melting point 58-59°C.; insoluble in water; soluble (hot) in hydrocarbons.

GLYCOMEL: (The 3 following chemicals are products of same company).

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

A water-soluble colorless liquid, for use in hair-setting lotions to "solubilize" the vegetable gums thus making the resulting film more transparent.

GLYCOPON AA; S:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

A colorless, odorless liquid, soluble in water, alcohol and glycerin; insoluble in oils, hydrocarbons, etc.; hyroscopic, for giving a soothing, hyroscopic action to creams and lotions. "Glycopon S" is as "Glycopon AA" but a somewhat stronger solvent; dissolves up to 10% essential oils.

GLYCOSTERIN:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

A highly refined grade of diglycol stearate; a white, wax-like solid with a melting point of 53–54°C.; dispersible in hot water, forming stable emulsions on cooling while stirring; soluble (hot) in alcohol, oils, waxes, and solvents. It is an emulsifying agent for the manufacture of creams, lotions, etc., free from alkalis. The addition of 1–2% glycosterin to vanishing creams, brushless shaving creams and other cosmetic creams made with stearic acid will tend to eliminate breakdown due to freezing. A similar amount added to lipsticks, paste rouges, mascara, etc., will give smoothness and reduce "sweating."

GLYCO WAX A:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

A synthetic wax, odorless, white; insoluble in water; melting point 58–60°C. It is useful as a stiffening agent in cream emulsions; also suggested in the manufacture hair straighteners; replaces beeswax for certain purposes.

GRANULAR SAL AMMONIAC:

Chemical Service Corp., 82 Beaver St., New York, N.Y.

Mallinckrodt Chem. Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

Republic Chem. Corp., 94 Beekman St., New York, N.Y.

GRAPHITE:

Barclay Chemical Co., 75 Varick St., New York, N.Y.

Kraft Chemical Co., 917 W. 18th St., Chicago, Ill.

Harshaw Chemical Co., 1954 E. 97th St., Cleveland, Ohio

Carbon & Carbide Co., 30 E. 42nd St., New York, N.Y.

GUM TRAGACOL: (A vegetable gum, replaces Gum Tragacanth in many cases).

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

GUMS, TRAGACANTH, INDIAN KARAYA, ETC.:

Doe & Ingalls, 56 Garden St., Everett, Mass.

Fritzsche Bros., 76 Ninth Ave., New York, N.Y.

Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio

Mallinckrodt Chem. Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

S. B. Penick, 50 Church St., New York, N.Y.

Phillips & Jacobs, 622 Race St., Phila., Pa.

HARCOL:

Same firm as above.

A liquid emulsifying agent for the manufacture of perfume "milks" and emulsified (milky) hair oils.

HERBS, ROOTS, FLOWERS, BARKS, ETC.:

Greer Drug & Chem. Corp., 291 Oak St., Lenoir, N.C.

S. B. Penick & Co., 50 Church St., New York, N.Y.

Republic Chem. Corp., 94 Beekman St., New York, N.Y.

HEXACHLOROPHENE:

Sindar Corp., 330 W. 42nd St., New York, N.Y.

HOMOGENIZERS (ALUMINUM):

Cherry-Burrell Corp., 427 W. Randolph St., Chicago, Ill.

Homogenizer Corp. Ltd., 636 N. Robertson Blvd., Los Angeles, Cal.

Manton Gaulin Mfg. Co., 44 Garden St., Everett, Mass.

Saylor Homogenizer Co., 1522-34 S. Gerhart St., Los Angeles, Cal.

HYDROCHLORIC ACID (MURIATIC) 20% TECH. GRADE:

Barclay Chemical Co., 75 Varick St., New York, N.Y.

Thompson-Hayward Chemical Co., 2915 Southwest Blvd., Kansas City 8, Mo.

HYDROPHILLIC MUCILOID OF PLANTAGO ORABA:

Fritzsche Bros., 76 Ninth Ave., New York, N.Y.

S. B. Penick & Co., 50 Church St., New York, N.Y.

HYSTERENE T-70 FATTY ACID:

The Humko Company, Trendex Division, Memphis, Tenn.

INCOR, INCODEL:

Universal Atlas Cement Co., 100 Park Ave., New York, N.Y.
Borde Co. Chem. Div., 350 Madison Ave., New York, N.Y.

INFUSORIAL EARTH (KIESELGUHR):

Kraft Chemical Co., 917 W. 18th St., Chicago, Ill.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio
Johns-Manville, 22 E. 40th St., New York, N.Y.
Moore Chemical Mfg. Co., 4333 University St., Tucson, Arizona
Phillips & Jacobs, 622 Race St., Phila., Pa.
Republic Chem. Corp., 94 Beekman St., New York, N.Y.
Thompson-Hayward Chemical Co., 2915 Southwest Blvd., Kansas City
8, Mo.

IRON & AMMONIUM CITRATE:

J. T. Baker Chemical Co., Phillipsburg, N.J.
Mallinckrodt Chem. Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Charles Pfizer & Co., 630 Flushing Ave., Brooklyn, N.Y.

IRON CHLORIDE, TINCTURE:

E. I. Du Pont de Nemours & Co., Electrochemical Dept., Wilmington
98, Del.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio
Mallinckrodt Chem. Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Republic Chem. Corp., 94 Beekman St., New York, N.Y.

IRON FILINGS, IRON POWDER, REDUCED IRON, ETC.:

J. T. Baker Chemical Co., Phillipsburg, N.J.
Mallinckrodt Chem. Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.

ISOHOL:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.
A refined grade of isopropanol. Replaces alcohol for external
purposes.

ISOPROPANOL (99%):

See listings for "Alcohol, Isopropyl."

ISOPROPYL CITRATE:

American Food Labs. Inc., 860 Atlantic Ave., Brooklyn, N.Y.
Battle Creek Extract Co., Battle Creek, Mich.
Food Materials Corp., 2521 W. 48th St., Chicago, Ill.
Dayton Food Products Co., 436 Wayne Ave., Dayton, Ohio
Degivaudon Flavors Inc., 330 W. 42nd St., New York, N.Y.
Magnus, Mabee & Reynard Inc., 16 Desbrosses St., New York, N.Y.

IVORY BLACK:

Brooklyn Color Works Inc., Morgan & Norman Sts., Brooklyn, N.Y.
Fritzsche Bros., 76 Ninth Ave., New York, N.Y.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio
Hilton Davis Chemical Co. Division, 2235 Langdon Farm Rd., Cincinnati, Ohio
Mineral Pigments Corp., Washington Blvd., Muirkirk, Md.

JAPAN DRIER:

Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio
Howe & French, 99 Broad St., Boston, Mass.
Kraft Chemical Co., 917 W. 18th St., Chicago, Ill.
Sherwin-Williams Co., 260 Madison Ave., New York, N.Y.
Practically all varnish-making firms.

JAPAN WAX:

Howe & French, 99 Broad St., Boston, Mass.
International Wax Refining Corp., 99 E. Hawthorne Ave., Valley Stream, N.Y.
Wax & Rosin Products, 42nd Broadway, New York, N.Y.

JARS, COSMETICS, OINTMENT, ETC.:

Same firms as listed under "Glass Jars."

KAOLIN:

Georgia Kaolin Co., 433 N. Broad St., Elizabeth, N.J.
See also firms listed under "Clay."

KEROSENE:

See suppliers under "Petroleum, Distillates."

LABELS:

Drug Package Inc., 241 Glasgow Ave., St. Louis, Mo.

Ever Ready Label Corp., Belleville 9, N.J.
Pictorial Paper Package Corp., Aurora, Ill.

LABORATORY EQUIPMENT:

Armstrong Cork Co., Liberty St., Lancaster, Pa.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio
Owens Illinois Glass Co., Toledo, Ohio

LANOLIN ABSORPTION BASE:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

LANOLIN, ANHYDROUS:

Fanning Chemical Corp., 352 Doremus Ave., Newark, N.J.
R. W. Greeff & Co. Inc., New York, N.Y.
Mallinckrodt Chem. Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
S. B. Penick & Co., 50 Church St., New York, N.Y.

LATEX EMULSIONS, ALL GRADES:

Adhesives Products Corp., 1660 Boone Ave., New York, N.Y.
Dow Chemical Co., Midland, Mich.
B. F. Goodrich Chemical Co., 3135 Euclid Ave., Cleveland, Ohio
Goodyear Tire & Rubber Co., 1485 E. Archwood Ave., Akron, Ohio
Rubber Corp. of America, 225 Broadway, New York, N.Y.

LECITHINS:

American Lecithin Co., 57-01 32nd Ave., Woodside, N.Y.
Glidden Co., 5165 W. Moffat, Chicago, Ill.
Staley A. E. Manufacturing Co., Decatur, Ill.

LEMENONE:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.
A thin, white oil having a lemon-lime odor, for imparting a pleasant lemon like odor to cosmetics.

LIGHT MINERAL OIL:

Same firms as for "Mineral Oil."

LIMESTONE, POWDERED OR MARBLE DUST:

Austin White Lime Co., P.O. Box 53, Austin, Texas
Marblehead Lime Co., 308 W. Washington St., Chicago 6, Ill.

LINSEED OIL, BOILED, RAW:

National Lead Co., 111th Broadway, New York 6, N.Y.
Sherwin-Williams Co., 260 Madison Ave., New York 16, N.Y.
Spencer Kellogg & Sons, 98 Delaware Ave., Buffalo 5, N.Y.

LITHOPONE:

Harshaw Chemical Co., 1945 E. 97th St., Cleveland 6, Ohio
New Jersey Zinc Co., 160 Front St., New York, N.Y.
Republic Chem. Corp., 94 Beekman St., New York, N.Y.
Sherwin-Williams Co., 260 Madison Ave., New York 16, N.Y.
Smith Chemical & Color Co., 55 John St., Brooklyn 1, N.Y.

LIVER EXTRACT CONCENTRATES, ETC.:

Armour & Co., Chicago 9, Ill.
Swift & Co., Chicago, Ill.

MACE: See listings under "Spices."

**MACHINERY, MIXING, SIFTING, PORTABLE, ROLLER MILL,
(USED & REBUILT):**

Arthur Colton Co., 303 Fifth Ave., New York, N.Y.
J. H. Day Co., 4932 Beech St., Cincinnati, Ohio
Enterprise Engine & Machinery Co., 18 & Florida Sts., San Francisco,
Cal.
Manning & Louis Engineering Co., 28-42 Ogden St., Newark, N.J.
Mixing Equipment Co., Rochester, N.Y.
Charles Ross & Son Co. Inc., 148-156 Classen Ave., Brooklyn, N.Y.

MAGNESIUM STEARATE:

S. L. Abbot Co., Sante Fé Ave., Los Angeles, Cal.
Kraft Chemical Co., 917 W. 18th St., Chicago, Ill.
Mallinckrodt Chem. Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Whittaker, Clark & Daniels, Inc., 260 W. Broadway, New York, N.Y.

MALT, POWDER, SYRUP (LIGHT, HEAVY, ETC.):

Anheuser-Busch Inc., St. Louis, Mo.
Malt-Diastase Co., Wycoff Avenue & Decatur St., Brooklyn, N.Y.
Pabst Sales Co., 221 N. La Salle St., Chicago, Ill.
Red Star Yeast & Products Co., 221 E. Buffalo St., Milwaukee, Wis.
Standard Brands Inc., 595 Madison Ave., New York, N.Y.

MANGANESE, METAL:

Belmont Smelting & Refining Works, 322 Belmont Ave., Brooklyn, N.Y.
Bram Chemical Co., 820-65th Ave., Philadelphia, Pa.
General Metallic Oxides Co., 164-1st St., Jersey City, N.Y.

MANGANESE RESINATE:

Ferro Chemical Corp., Box 349 Bedford, Ohio
Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio
J. Meyer & Sons, 4321 N. 4th St., Phila., Pa.

MANILA LOBA B RESIN DISPERSION (POWDERED):

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York, N.Y.
Specialty Resins Co., 2801 Lynwood, Cal.
Also see firms under "Casein (Lactic Acid)."

MEASURING AGENTS:

Same firms as supply "Glass Bottles."

MENTHOL: See firms under "Thymol."**METHANOL, 95%, 99.5%, ETC., CHEM. PURE:**

Allied Chemical & Dye Corp., 61 Broadway, New York, N.Y.
Commercial Solvents Corp., 260 Madison Ave., New York 16, N.Y.
E. I. Du Pont de Nemours & Co., Polychem. Dept., Wilmington 98, Del.
De Mert & Dougherty Inc., 3001 W. 47, Chicago 32, Ill.

METHIONONE:

Dow Chemical Co., Midland, Mich.
B. L. Lemke & Co., 199 Main St., Lodi, N.J.
Merck & Co., Rahway, N.J.
U.S. Industrial Chemical Co. Div., 120 Broadway, N.Y.
Winthrop Labs., Special Chem. Dept., 1450 Broadway, New York, N.Y.

METHOCELL:

Dow Chemical Co., Midland, Mich.
Mallinckrodt Chem. Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.

METHYL CELLULOSE, FINE POWDER, DOWICIDE A, LOW VISCOSITY:

Barclay Chemical Co., 75 Varick St., New York, N.Y.
Dow Chemical Co., Midland, Mich.

METHYL SALICYLATE, SYNTHETIC:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

Thompson-Hayward Chemical Co., 2915 Southwest Blvd., Kansas City 8, Mo.

Verona Chemical Co., 26 Verona Ave., Newark, N.J.

METHYLENE CHLORIDE, TECH:

American Mineral Spirits Co., 230 N. Michigan Ave., Chicago, Ill.

De Mert & Dougherty, Inc., 3001 W. 47th St., Chicago 32, Ill.

Dow Chemical Co., Midland, Mich.

See also firms under "Iron Chloride Tincture."

MICA, POWDER:

English Mica., 79 Prospect St., Stanford, Conn.

Smith Chemical & Color Co., 55 John St., Brooklyn, N.Y.

Whittaker, Clark & Daniels, Inc., 260 W. Broadway, New York, N.Y.

MILCOL:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

A clear liquid for the production of a "milk" in permanent-wave solutions and other alkaline liquids.

MILK, POWDERED, SKIMMED, WHOLE DRY, ETC.:

American Dry Milk Institute Inc., 221 N. La Salle St., Chicago, Ill.

Armour & Co., U.S. Stockyards, Chicago, Ill.

Borden Co., 350 Madison Ave., New York, N.Y.

Dairyland Milk Corp., 820 Hampden Ave., St. Paul, Minn.

MILK SUGAR:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

New York Quinine & Chemical Works, 50 Church St., New York 7, N.Y.

MINERAL OIL, LIGHT, ALL TYPES:

Atlantic Refining Co., 260 S. Broad St., Philadelphia, Pa.

Barclay Chem. Co., 75 Varick St., New York, N.Y.

Cities Service Oil, Bartlesville, Okla.

Mineral Oil Refining Co., P.O. Box 625, Dickinson, Texas

Pennsylvania Refining Co., Butler, Pa.

Standard Oil Co., Sales Offices in all large cities.

MIXERS, POWDER, HEATED, STEAM JACKETED, CONTINUOUS,
PORTABLE, NEW & REBUILT MACHINERY:

Same firms as supply "Agitators" and also "Machinery Mixing & Sifting."

MODULAN:

American Cholesterol Products, Inc., Milltown, N.J.

MOLD INHIBITORS (PRESERVATIVES):

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

Preservatives, the esters of para-hydroxybenzoic acid and chlorobutanol have been found to be very satisfactory in counteracting mold and other bacterial growth in water solutions and emulsions containing vegetable gums, casein, starch, gelatine, etc. Soluble in alcohol, glycerin and glycol. In general, about 18 ounces of mold inhibitor are sufficient for 100 gallons of finished product. The mold inhibitor should be dissolved by heat in the water used. The mold inhibitor should be used in most creams whether so indicated in the formula or not.

MOLDEX:

Same firm as above.

A preservative for the retardation and prevention of mold and other bacterial growth in water solutions and emulsions containing vegetable gums, casein, starch, gelatine, etc. Soluble in alcohol, glycerin and glycol. In general, about 18 ounces of moldex are sufficient for 100 gallons of finished product. The moldex should be dissolved by heat in the water used.

MONOETHANOLAMINE (AMINE):

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York, N.Y.

Chemical Service Corp., 82 Beaver St., New York, N.Y.

Dow Chemical Co., Midland, Mich.

MONOGLYCERIDE:

Colgate-Palmolive Co., 300 Park Ave., New York, N.Y.

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

Swift & Co., U.S. Yards, Chicago, Ill.

MONSEL SALT:

Same sources as supply "Alum."

MORPHOLINE:

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York, N.Y.
Distillation Products Industry, 755 Ridge Rd. W., Dorchester, N.Y.
Dow Chemical Co., Midland, Mich.

MULSENE:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.
A solubilizing agent for making perfume oils soluble in water.

MUSTARD SEED, SPICES, ETC.:

Magnus, Mabee & Reynard, Inc., 16 Desbrosses St., New York, N.Y.
McLaughlin Gormley King Co., 1715 S. E. 5th St., Minneapolis, Minn.
S. B. Penick & Co., 132 Church St., New York, N.Y.

"NACCONOL" DETERGENT (NRSF):

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York, N.Y.

NAPHTHA, HEAVY, STODDARD FLUID:

Atlantic Refining Co., 260 S. Broad St., Philadelphia, Pa.
Cities Service Oil, Bartlesville, Okla.
Pennsylvania Refining Co., Butler, Pa.
Shell Oil Co., 50 W. 50th St., New York, N.Y.
Sinclair Refining Co., 600 Fifth Ave., New York, N.Y.

NAPHTHALENE:

Barrett Division, Allied Chem. & Dye Corp., 40 Rector St., New York, N.Y.
Naphthalene Products Co., P.O. Box 6328, Birmingham, Ala.
Reilly Tar & Chemical Corp., 1615 Merchant Bldg., Indianapolis, Ind.

NAPHTHOL YELLOW S:

See listings under "Food Colors."

NICOTINAMIDE:

See listings under "Vitamins."

OCENOL:

E. I. Du Pont de Nemours & Co. Inc., Wilmington, Del.

OIL OF CANADA SNAKE ROOT:

See listings under "Perfume Oils."

OIL OF CEDAR LEAVES, CEDAR WOOD:

Fritzsche Bros., 76 Ninth Ave., New York, N.Y.

Magnus, Mabey & Reynard, 16 Desbrosses St., New York, N.Y.

S. B. Penick & Co., 50 Church St., New York, N.Y.

OIL OF CINNAMON, PINE PUMILLIUS, OIL OF THUJA OCCIDENTALIS:

See listings under "Perfume Oils."

OIL OF LAVENDER SPIKE: See "Perfume Oil" supply sources.**OIL OF SASSAFRAS (OTHER COVER ODORS):**

Florasynth Lab's, 1513 Olmstead Ave., Bronx 61, New York, N.Y.

Verona Chemical Corp., 26 Verona Ave., Newark, N.J.

OLEIC ACID:

Armour Chemical Division, 1355 W. 31st., Chicago, Ill.

Barclay Chemical Co., 75 Varick St., New York 13, N.Y.

Celina Stearic Acid., Celina, Ohio

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

Proctor & Gamble, Cincinnati, Ohio

OLEORESIN GINGER:

Refer to firms under "Perfume Materials, Oils, Colors, Etc."

OLIVE OIL:

Barclay Chemical Co., 75 Varick St., New York 13, N.Y.

Welch, Holme & Clark Co., 1 Hudson St., New York, N.Y.

ONDULUM:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

A processed vegetable gum in powder form for the manufacture of hair-wave lotions of heavy "body" and "stringness" or length.

OXALIC ACID:

American-British Chemical Supplies, 180 Madison Ave., New York, N.Y.

J. T. Baker Chemical Co., Phillipsburg, N.J.

Mathieson, Coleman & Bell, 4101 Montgomery Rd., Norwood, (Cincinnati), Ohio

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

OXIDIZED MICROCRYSTALLINE WAX (SELF-EMULSIFYING)

(PETRONAUBA MICROWAX):

Bareco Oil Co., Box 2009, Tulsa, Okla., or 121 S. Broad St., Philadelphia, Pa.

**OXYCHOLESTERIN ABSORPTION BASE (EMOLIENT) FOR A
HOUSEHOLD CLEANER:**

Innis, Speiden & Co., 420 Lexington Ave., New York 6, N.Y.

OXYQUINOLINE; BASE; SULFATE, ETC.:

Benzol Products Co., 237 S. Street, Newark, N.J.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

New York Quinine & Chemical Works, 50 Church St., New York 7, N.Y.

OZOKERITE:

Kelsey-Risden Co., New York, N.Y.

PAPAIN:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

PARACHOL:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

An absorption base of the Eucerin type characterized by lightness of color and freedom from odor.

PARADICHLOROBENZOL:

Doe & Ingalls, 56 Garden St., Everett, Mass.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Solvay Sales Corp., 61 Broadway, New York, N.Y.

PARAFFIN WAX:

Atlantic Refining Co., 269 S. Broad St., Philadelphia, Pa.

Cities Service Petroleum, Bartlesville, Okla.

Industrial Chem. Specialties Co., P.O. Box 456, Baytown, Texas

Shell Oil Co., 50 W. 50th St., New York, N.Y.

Sinclair Refining Co., 600 Fifth Ave., New York, N.Y.

Standard Oil Co., Barclay Chem. Co., 75 Varick St., New York, N.Y.

PARAFFIN WAX OR (MICRO-CRYSTALLINE WAX):

Cities Service Petroleum, Bartlesville, Oklahoma
Sinclair Refining Co., 600 Fifth Ave., New York, N.Y.
Warwick Wax Co. Inc., Long Island City, N.Y.
See also firms above.

"PARASEPTS" PRESERVATIVES:

Heyden Newport Chemical Corp., 342 Madison Ave., New York 17,
N.Y.

PARASTEARIN:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

A white, wax-like product used in conjunction with Parachol in the manufacture of absorption-base creams as an auxiliary stabilizer and hardening agent.

PEANUT OIL:

Pacific Vegetable Oil Corp., 62 Townsend St., San Francisco, Cal.
Spencer Kellogg & Sons, Buffalo, N.Y.
See also listings "Cottonseed Oil."

PECTIN:

City Chemical Corp., 132 W. 22nd St., New York, N.Y.
S. B. Penick & Co., 50 Church St., New York, N.Y.
Republic Chem. Corp., 94 Beekman St., New York, N.Y.

PENICILLIN:

Bristol Labs., 630 Fifth Ave., New York, N.Y.
Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
E. R. Squibb & Son, New York, N.Y.

PEPSIN:

Merck & Co., Rahway, N.J.
K & K Labs., 2946 Northern Blvd., Long Island City, N.Y.
Winthrop Labs., 1450 Broadway, New York, N.Y.

PERFUME MATERIALS, OILS, COLORS, ETC.:

Dodge & Olcott, 180 Varick St., New York, N.Y.
Evergreen Chemical Co., 160 Fifth Ave., New York, N.Y.
Fritzsche Bros., 76 Ninth Ave., New York, N.Y.

Florasynth Lab's, Inc., 900 Van Nest Ave., New York, N.Y.
Givaudan-Delawanna, Inc., 330 W. 42nd St., New York, N.Y.
Magnus, Mabee & Reynard, Inc., 16 Desbrosses St., New York, N.Y.
Polak's Frutal Works, Inc., 33 Sprague Ave., Middletown, N.Y.

PERFUME, OIL CITRONELLA, ETC.:

See firms above.

PERMOSALT:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.
A white alkaline powder for permanent-wave solutions.

PERMOSALT A:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.
Similar to above but requiring no ammonia for the preparation
of nonammonia permanent-wave solutions.

PETROLATUM, CRUDE:

Same firms as for "Mineral Oils."

PETROLEUM DISTILLATES:

Atlantic Refining Co., 260 S. Broad St., Phila., Pa.
Cities Service Petroleum, Bartlesville, Okla.
Republic Chemical Corp., 94 Beekman St., New York, N.Y.
Standard Oil Co., Barclay Chem. Co., 75 Varick St., New York, N.Y.

PETROLEUM NAPHTHA, SP. GR. 60°0.730, (BENZINE), ETC.:

Same firms as for "Benzol & Petroleum Naphtha Sp. Gr. 60° 0.730."

PETROLEUM WAX (SUITABLE FOR USE IN A SOLVENT-TYPE PAINT REMOVER):

Atlantic Refining Co., 260 S. Broad St., Philadelphia, Pa.
Concord Chemical Co., 205 S. 2nd St., Camden, N.J.
Pennsylvania Refining Co., Butler, Pa.
Shell Oil Co., 50 W. 50th St., New York, N.Y.

PHENACETIN:

See sources of supply under "Acetophetidine."

PHENOL OR CARBOLIC ACID:

Same firms as for "Carbolic Acid."

PHENOLPHTHALEIN:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.

PIGMENT (COSMETIC):

Fritzsche Bros., 76 Ninth Ave., New York, N.Y.
Kraft Chemical Co., W. 18th St., Chicago, Ill.
Magnus, Mabee & Reynard, 16 Desbrosses St., New York, N.Y.
Whittaker, Clark & Daniels, 260 N. Broadway, New York, N.Y.

PINEAPPLE FLAVOR:

See listings under "Flavor Oils."

PINE OIL & PERFUME OILS:

Dixie Pine Products Co., P.O. Drawer 470, Hattiesburg, Miss.
S. B. Penick & Co., 50 Church St., New York, N.Y.
Hercules Powder Co., Wilmington 99, Del.
See other firms under "Perfume Materials, Oils, Colors, Etc."

PINK DYE & ODORANT (MASKING ODOR) FOR GLASS POL. WAX

Dodge & Olcott, 180 Varick St., New York 14, N.Y.
General Dyestuff Corp., 435 Hudson St., New York 14, N.Y.

PLUMBAGO (GRAPHITE):

Barclay Chemical Co., 75 Varick St., New York, N.Y.
Kraft Chemical Co., 917 W. 18th St., Chicago, Ill.
Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Republic Chemical Corp., 94 Beekman St., New York, N.Y.

POLYCOL:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.
A water-white, odorless liquid, acting as a softening agent and hygroscopic material for lotions, creams, etc.

POLYETHYLENE GLYCOL 400 DI-STEARATE; 300 MONO-STEARATE; 400 M.S.; 600 M.S.:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.
Atlas Powder Co., Wilmington, Del.

POLYSTYRENE (MEDIUM VISCOSITY):

American Polymer Corp., 101 Foster St., Peabody, Mass.

Dow Chemical Co., Midland, Mich.
Monsanto Chemical Co., Plastics Div., Springfield, Mass.
Koppers Co. Inc., Pittsburgh 19, Pa.
Pennsylvania Industrial Chem. Corp., 120 State St., Clairton, Pa.

POLYVINYL ACETATE:

Alkydol Labs., 3242 S. 50th Ave., Cicero 50, Ill.
Dewey & Almy Chemical Co., 62 Whittemore Ave., Cambridge 40, Mass.
Shawingian Resins Corp., 22 E. 40th St., New York 1, N.Y.

POTASH (CRUDE), CAUSTIC:

J. T. Baker Chemical Co., Phillipsburg, N.J.
Dow Chemical Co., Midland, Mich.
Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Solvay Process Div., 61 Broadway, New York, N.Y.

POTASSIUM CHLORATE:

American Potash & Chem. Corp., 99 Park Ave., New York, N.Y.
Carnegie Chemical Mfg. Co., 6363 Wilshire Blvd., Los Angeles, Cal.
Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

POTASSIUM HYDROXIDE (85% AS KOH):

Same firms as supply "Caustic Potash."

POTASSIUM NITRATE, TECH:

J. T. Baker Chemical Co., Phillipsburg, N.J.
Barclay Chem. Co., 75 Varick St., New York, N.Y.
Stauffer Chemical Co., 380 Madison Ave., New York 17, N.Y.

POTASSIUM OXALLATE:

J. T. Baker Chemical Co., Phillipsburg, N.J.
Hummel Chemical Co., 90 W. St., New York, N.Y.
Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

PRESERVATIVES, (MOLD INHIBITORS):

See firm under "Mold Inhibitors (Preservatives)."

PROPYLENE GLYCOL:

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York, N.Y.

Celanese Corp. of America, Chem. Division, 180 Madison Ave., New York, N.Y.

De Mert & Dougherty, 3301 W. 47th St., Chicago, Ill.

Dow Chemical Co., Midland, Mich.

Wyandotte Chemical Corp., Wyandotte, Mich.

PROPYLENE STEARATE:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

PROSTEARIN:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

Propylene Glycol Stearate. A self-emulsifying wax-like product of low melting point (37.5°C.).

PULVERIZED FELDSPAR, ABRASIVE:

See firms for "Abrasive."

PYRETHRUM FLOWERS:

Chemical Insecticide Corp., Montague St., Brooklyn, N.Y.

McLaughlin Gormley King Co., 1715 S. E. 5th St., Minneapolis, Minn.

S. B. Penick & Co., 50 Church St., New York, N.Y.

QUINCE SEED (MUCILAGE):

S. B. Penick, 50 Church St., New York, N.Y.

Tragacanth Importing Co., 141 E. 44 St., New York, N.Y.

Also local "Wholesale Drug Houses."

RED BONE MARROW:

Same listings as under "Liver Extract."

RESIN DISPERSIONS, CASEIN, MANILA LOBA B, SHELLAC:

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York 17, N.Y.

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

See also firms under "Casein (Lactic Acid)."

ROSIN:

Doe & Ingalls, 56 Garden St., Everett, Mass.

National Rosin Oil Products Inc., 1270 Ave. of the Americas, New York, N.Y.

Republic Chemical Corp., 94 Beekman St., New York, N.Y.

ROTENONE:

Chemical Insecticide Corp., Montague St., Brooklyn, N.Y.

S. B. Penick & Co., 50 Church St., New York, N.Y.

U.S. Industrial Chemical Co. Division, 99 Park Ave., New York, N.Y.

RUBBER, RAW GUM:

B. F. Goodrich Chemical Co., 3135 Euclid Ave., Cleveland, Ohio
Rubber Corp. of America, 225 Broadway, New York, N.Y.

SACCHARIN:

Barclay Chem. Co., 75 Varick St., New York, N.Y.
Mallinckrodt Chemical Works, St. Louis, Mo.
Merck & Co., Rahway, N.J.
New York Quinine & Chem. Works, 50 Church St., New York 7, N.Y.
Republic Chem. Corp., 94 Beekman St., New York, N.Y.

SALICYLIC ACID:

Dow Chemical Co., Midland, Mich.
Heyden Chemical Corp., 342 Madison Ave., New York, N.Y.
Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
New York Quinine & Chemical Works, 50 Church St., New York 7, N.Y.

SALOL:

Same firms as supply "Calcium Carbonate."

SAVOLIN:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.
A wax-like emulsifying base for the manufacture of mascara.

SCALES (WEIGHING):

Scientific Glass Apparatus Co. Inc., 100 Lakewood Terr., Bloomfield, N.J.
Torsion Balance Co., Clifton, N.J.
Henry Troemner, 911 Arch St., Philadelphia, Pa.

SCENTING OIL, ALL KINDS:

Fritzsche Bros., 76 Ninth Ave., New York, N.Y.
S. B. Penick & Co., 50 Church St., New York, N.Y.
Polak & Schwarz Inc., 667 Washington St., New York, N.Y.
Van Ameringen Haebler Inc., 521 W. 57th St., New York, N.Y.

SESAME OIL:

Same firms as for "Perfume Materials."

SHELLAC, BLEACHED, DEWAXED, ETC.:

Acme Shellac Products Co., 100 Blanchard St., Newark, N.J.

DeMert & Dougherty, Inc., 3301 W. 47 St., Chicago, Ill.

Doe & Ingalls, 56 Garden St., Everett, Mass.

Phillips & Jacobs, 622 Race St., Philadelphia, Pa.

SHELLAC, RESIN DISPERSION:

See firms under "Resin Dispersion" also "Casein (Lactic Acid)."

SHORTENING, EMULSIFIED:

Durkee Famous Foods, 82 Corona Ave., Elmhurst, L.I., N.Y.

Lever Bros. Co., 390 Park Ave., New York, N.Y.

Proctor & Gamble Co., P.O. Box 599, Cincinnati, Ohio

Wesson Oil & Snowdrift Sales Co., 210 Baronne Street, New Orleans, La.

SILICA, FINELY GROUND:

International Minerals & Chem. Corp., 485 Lexington Ave, New York, N.Y.

Kraft Chemical Co., 917 W. 18th St., Chicago 8, Ill.

SILICA, FLOATED:

Bram Chemical Co., 820 65th Ave., Philadelphia, Pa.

Doe & Ingalls, 56 Garden St., Everett, Mass.

Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio

Illinois Minerals Co., 807½ Washington Ave., Cairo, Ill.

Also see firms listed under "Infusorial Earth."

SILICONES:

Dow-Corning Corp., Midland, Mich.

General Electric Co., Pittsfield, Mass.

K & K Labs. Inc., Long Island City, N.Y.

SOAP, ANHYDROUS, POWDERED 95-99%:

Armour & Co., 1355 W. 31st St., Chicago, Ill.

Colgate-Palmolive Co., 300 Park Ave., New York, N.Y.

Concord Chem. Co. Inc., 205 S. 2 St., Camden, N.J.

SOAP CHIPS (FLAKES):

Armour Chemical Division, 1355 W. 31st St., Chicago, Ill.

Proctor & Gamble Co., Cincinnati, Ohio

Also local stores.

SODA ASH, CAUSTIC SODA, LIGHT, ETC.:

Diamond Alkali Co., 300 Union Commerce Bldg., Cleveland, Ohio
Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio
Republic Chemical Corp., 94 Beekman St., New York, N.Y.
Solvay Process Division, (Allied Chemical & Dye Corp.), 61 Broadway, New York, N.Y.
Wyandotte Chemicals Corp., Wyandotte, Mich.

SODA LYE:

Diamond Alkali Co., 300 Union Commerce Bldg., Cleveland, Ohio
Dow Chemical Co., Midland, Mich.
Republic Chemical Corp., 94 Beekman St., New York, N.Y.

SODA BICARBONATE, COMMERCIAL:

Church & Dwight Co., 70 Pine St., New York 5, N.Y.
Diamond Alkali Co., 300 Union Commerce Bldg., Cleveland, Ohio
Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio
Mallinckrodt Chemical Works, St. Louis, Mo.
Merck & Co., Rahway, N.J.
Wyandotte Chemicals Corp., Wyandotte, Mich.

SODA TALLOW SOAP, POWDERED:

See listings under "Sodium Tallow Soap."

SODIUM ALGINATE, TECH:

Algin Corp. of America, 24 State St., New York 4, N.Y.
Burtonite Co., 166 Chestnut St., Nutley, N.J.
Kelco Co., 120 Broadway, New York 5, N.Y.

SODIUM ALKYL ARYL SULFONATE:

Same listings as for "Sodium Carboxymethyl Cellulose."

SODIUM ALUMINUM SILICOFLUORIDE, OR SODIUM SILICOFLUORIDE:

Blockson Chemical Co., Joliet, Ill.
Davison Chemical Corp., 101 N. Charles St., Baltimore, Md.
General Chemical Div., 40 Rector St., New York, N.Y.
Mercer Chemical Corp., 11 Mercer St., New York, N.Y.
Tennessee Corp., 619 Grant Bldg., Atlanta, Ga.

SODIUM BENZOATE:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.

New York Quinine & Chemical Works, 50 Church St., New York 7, N.Y.
Charles Pfizer Co., 630 Flushing Ave., Brooklyn, N.Y.
Republic Chemical Corp., 94 Beekman St., New York, N.Y.

SODIUM BISULFITE:

Barclay Chemical Co., 75 Varick St., New York, N.Y.
Harshaw Chemical Co., 1945 E. 97 St., Cleveland, Ohio
McKesson Robbins, 155 E. 44th St., New York, N.Y.
Phillips & Jacobs, 622 Race St., Philadelphia, Pa.

SODIUM CARBONATE, ANHYD; (SODA ASH):

Same firms as for "Soda Ash."

SODIUM CARBOXYMETHYL CELLULOSE:

Antara Chemical Div., 435 Hudson St., New York 14, N.Y.
Hercules Powder Co., 900 Market St., Wilmington, Del.
Wyandotte Chemical Corp., Wyandotte, Mich.

SODIUM CHLORIDE:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.

SODIUM FLUORIDE:

American Agricultural Chemical Co., 50 Church St., New York, N.Y.
Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Republic Chemical Corp., 94 Beekman St., New York, N.Y.

SODIUM GLUTAMIDE:

City Chemical Corp., 132 W. 22nd St., New York, N.Y.
International Mineral & Chemical Corp., 20 N. Wacker Dr., Chicago, Ill.

SODIUM GLYCOCHOLATE, TAUROCHOLATE:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.

SODIUM HYDROXIDE:

A commodity which can be purchased almost anywhere. Look in the pages of your classified phone directory under Chemicals, Manufacturers, Distributors, for a source nearest to you. The technical grade in flake form is easy to handle.

SODIUM HYPOSULPHITE:

American-British Chemical Supplies, 180 Madison Ave., New York, N.Y.

Hummell Chemical Co. Inc., 90 W. Street, New York, N.Y.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Phillips & Jacobs, 622 Race St., Philadelphia, Pa.

Republic Chemical Corp., 94 Beekman St., New York, N.Y.

Welch, Holme & Clark Co., 1 Hudson St., New York, N.Y.

SODIUM LACTATE:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.

New York Quinine & Chemical Works, 50 Church St., New York 7, N.Y.

SODIUM LAURYL SULFATE (12 CARBON ALCOHOL) SYNTHETIC DETERGENTS:

Duponol Me Dry (Technical Sodium Lauryl Sulfate)—

E. I. Du Pont de Nemours & Co., Organic Chem. Dept., Wilmington 98, Del.

Proctor & Gamble Co., Gwynne Bldg., Cincinnati, Ohio

Alrosen 31 (31% Modified Alc. Sulfate)—

Alrose Chemical Co., 180 Mill St., Cranston 5, R.I.

Sellogan P (A Lauryl Alcohol Sulfate, 85% Active)—

Jacques Wolfe & Co., 350 Lexington Ave., Clifton, N.J.

SODIUM LAURYL SULFOACETATE:

Aceto Chemical Co., 40-40 Lawrence St., Flushing, Long Island, New York

E. I. Du Pont de Nemours & Co., Organic Chem. Dept., Wilmington, Del.

Welch, Holme & Clark Co., 1 Hudson St., New York, N.Y.

SODIUM META-SILICATE, TECHNICAL, PENTAHYDRATE:

Cowles Chemical Co., 7016 Euclid Ave., Cleveland, Ohio

Philadelphia Quartz Co., 1168 Public Ledger Bldg., Philadelphia, Pa.

SODIUM PERBORATE:

American-British Chemical Supplies, 180 Madison Ave, New York, N.Y.

E. I. Du Pont de Nemours & Co., Electrochemicals Dept., Wilmington 98, Del.

Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio

Merck & Co., Rahway, N.J.

F. H. Taussig, 175 W. 76 St., New York 23, N.Y.

SODIUM PHOSPHATE; ALL SODIUMS:

J. T. Baker Chemical Co., Phillipsburg, N.J.

Blockson Chemical Co., Joliet, Ill.

Monsanto Chemical Co., Phosphate Div., St. Louis 4, Mo.

SODIUM SESQUICARBONATE:

Diamond Alkali Co., 300 Union Commerce Bldg., Cleveland, Ohio

Kraft Chemical Co., 917 W. 18th St., Chicago, Ill.

Solvay Process Division, 61 Broadway, New York, N.Y.

Also firms listed under "Soda Ash, Etc."

SODIUM SILICATE (WATER GLASS OR SILICATE OF SODA), 1:3.25:

Diamond Alkali Co., 300 Union Commerce Bldg., Cleveland, Ohio

Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio

Kraft Chemical Co., 917 W. 18th St., Chicago, Ill.

Philadelphia Quartz Co., 1168 Public Ledger Bldg., Philadelphia 6, Pa.

Republic Chemical Corp., 94 Beekman St., New York, N.Y.

SODIUM SULFATE, TECH; ANHYDROUS, SALT CAKE:

American Potash & Chemical Corp., 99 Park Ave., New York 16, N.Y.

Cornwell Chemical Corp., Cornwells Heights, Pa.

General Chemical Div., 40 Rector St., New York 6, N.Y.

Monsanto Chemical Co., Phosphate Div., St. Louis 4, Mo.

Stauffer Chemical Co., 380 Madison Ave., New York 17, N.Y.

SODIUM TALLOW SOAP, Powdered Grade Suitable for an Abrasive Hand Cleaner:

Armour Chemical Div., 1355 W. 31st St., Chicago, Ill.

Mallinckrodt Chemical Works, St. Louis, Mo.

Nopco Chem. Co., Harrison, N.J.

SODIUM TETRAPHOSPHATE, BEADS OR POWDER:

Kraft Chemical Co., 917 W. 18th St., Chicago, Ill.

Rumford Chemical Works, 9 Newman Ave., Rumford 16, R.I.

Welch, Holme & Clark Co., 1 Hudson St., New York 13, N.Y.

SODIUM TRIPOLYPHOSPHATE, TETRASODIUM PYROPHOSPHATE, DISODIUM HYDROGEN PHOSPHATE:

See firms under "Sodium Phosphate."

SORBO:

Atlas Powder Co., Wilmington 99, Del.

United States Chemical Co., 345 Hudson St., New York, N.Y.

Warwick Chemical Co. Div., 10 St. & 44th Ave., Long Island, N.Y.

SPAN 60:

Same firms as above.

SPERMACETI (WAX):

Doe & Ingalls Co., 56 Garden St., Everett, Mass.

Mutchler Chemical Co. Inc., 258 Broadway, New York, N.Y.

S. B. Penick & Co., 50 Church St., New York, N.Y.

Swift & Co., Union Stock Yards, Chicago, Ill.

SPICES, ALL TYPES:

Cunningham Spice Co., Madden, Mass.

Durkee Famous Foods, 82 Corona Ave., Elmhurst Long Island, N.Y.

Magnus, Mabee & Reynard Ave., 16 Desbrosses St., New York, N.Y.

Penick S. B. Co., 50 Church St., New York, N.Y.

SPRAYERS:

Continental Can Co., 135 S. La Salle St., Chicago, Ill.

De Vilbis Mfg. Co., Box 552, Summerset, Pa.

STARCH, CORN, WHEAT, ETC.:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

National Starch Products Inc., 270 Madison Ave., New York, N.Y.

Republic Chemical Corp., 94 Beekman St., New York, N.Y.

Welch, Holme & Clark Co., 1 Hudson St., New York, N.Y.

STEARACOL:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

Solubilizer for the manufacture of indelible lipsticks.

STEARIC ACID:

Armour Chemical Division, 1355 W. 31st St., Chicago, Ill.

Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio

Kraft Chemical Co., 917 W. 18th St., Chicago, Ill.
Merck & Co., Rahway, N.J.
Republic Chemical Corp., 94 Beekman St., New York, N.Y.

STEARORCINOL:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.
Similar to "Stearacol" (above) but somewhat softer.

STODDARD SOLVENT (Available in many localities):

Atlantic Refining Co., 260 S. Broad St., Philadelphia, Pa.
Shell Oil Co., 50 W. 50 St., New York 20, N.Y.

SUDS BOOSTER (NACONAL NR):

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
National Aniline & Chemical Co., 40 Rector St., New York, N.Y.
Republic Chemical Corp., 94 Beekman St., New York, N.Y.

SUET FAT (TALLOW):

See listings under "Tallow."

SULFATED COCONUT OIL MONOGLYCERIDE SODIUM SALT: (sold as **Monad G-31% Conc'n**)

Armour & Co., 1355 W. 31st St., Chicago, Ill.
Colgate-Palmolive Co., 300 Park Ave, New York, N.Y.

Note: In many cases it is not necessary to compound or "build" the synthetic detergent composition you desire. For example **Monad G** above is undoubtedly already compounded with builders; since it has an active concentration of 31%, the balance of the product must be builders. In such a case, it is only necessary to purchase in bulk and repackage in cartons.

SULFATHIAZOLE:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
New York Quinine & Chemical Works, 50 Church St., New York 7, N.Y.
Republic Chemical Corp., 94 Beekman St., New York, N.Y.

SULFO TURK A:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.
Refined grade of sulfonated castor oil.

SULFONATED CASTOR OIL (50%)

Baker Castor Oil Co., 40 Avenue A, Bayonne, N.J.
Pacific Vegetable Oil Corp., 62 Townsend St., San Francisco, Cal.
Sherwin Williams Co., 260 Madison Ave., New York, N.Y.
Spencer Kellogg & Sons, Buffalo, N.Y.
Welch, Holme & Clark Co. Inc., 1 Hudson St., New York, N.Y.

SULFUR FLOWERS:

Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio
Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Republic Chemical Corp., 94 Beeker St., New York, N.Y.

SYRUP, ORANGE, LEMON, ETC.:

Allied Food Corp. of America, 51 E. 42nd St., New York, N.Y.
Southern Food Inc., 2733 N. Union Ave., St. Louis, Mo.
Virginia Dare Extract Co. Inc., 882 3rd Ave., Brooklyn, N.Y.

TABLET MAKERS:

Eli Lilly & Co., Indianapolis, Ind.
Parke, Davis & Co., Detroit, Mich.
Sharp & Dohme Co., Philadelphia, Pa.
The Upjohn Co., Kalamazoo, Mich.

TALC:

Commercial Minerals Co., 310 Irvin St., San Francisco, Cal.
Doe & Ingalls, 56 Garden St., Everett, Mass.
Kraft Chemical Co., 917 W. 18th St., Chicago, Ill.
Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.
Merck & Co., Rahway, N.J.
Wyandotte Chemical Corp., Wyandotte, Mich.

TALLOW, EDIBLE:

Chicago Sanitary Product Co., 3100 S. Throop St., Chicago, Ill.
Pacific, Vegetable, Oil Corp., 62 Townsend St., San Francisco, Cal.
Swift & Co. Inc., Chicago, Ill.

TAMARINDS, ANCHOVIES, ETC.:

Dodge & Olcott, 180 Varick St., New York, N.Y.
Fritzsche Bros., 76 Ninth St., New York, N.Y.
S. B. Penick & Co., 50 Church St., New York, N.Y.
Also Wholesale Food Importers.

TANNIC ACID:

American-British Chemical Supplies, 180 Madison Ave., New York, N.Y.

Kraft Chemical Co., 917 W. 18th St., Chicago, Ill.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

TAR OIL:

Crowley Tar Products Corp., 271 Madison Ave., New York, N.Y.

Fritzsche Bros., 76 Ninth Ave., New York, N.Y.

Magnus, Mabee & Reynard, 16 Desbrosses St., New York, N.Y.

S. B. Penick & Co., 50 Church St., New York, N.Y.

TARTARIC ACID:

Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

"TERGITOL" WETTING AGENT 7, WET. AGENT 08, ETC.:

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York, N.Y.

TERPINEOL:

Fritzsche Bros., 76 Ninth Ave., New York, N.Y.

Magnus, Mabee & Reynard, 16 Desbrosses St., New York, N.Y.

S. B. Penick & Co., 50 Church St., New York, N.Y.

TESCOL:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

A perfume diluent for allowing dilute alcohol to be used as a perfume solvent.

TETRALIN, HEXALIN, ETC.:

E. I. Du Pont de Nemours & Co., Organic Chem. Dept., Wilmington 98, Del.

TETRASODIUM PYROPHOSPHATE, TECH; GRANULAR:

Blockson Chemical Co., Patterson Rd., Joliet, Ill.

Monsanto Chemical Co., Phosphate Div., 1700 S. 2nd St., St. Louis, Mo.

Victor Chemical Works, 155 N. Wacker Dr., Chicago 6, Ill.

THERMOMETERS, INDUSTRIAL, LABORATORY, RECORDING, ETC.:

Moeller Instrument Co., 132-02 89 Ave., Richmond Hill, N.Y.

Moor Products Co., H & Lycoming Sts., Philadelphia, Pa.

Precision Thermometer & Industrial Co., 1434 Brandywine St., Philadelphia, Pa.

THIAMINE CHLORIDE (CRYSTALLINE VITAMIN B₁) :

Abbott Laboratories, North Chicago, Ill.

Chicago Pharmacal Co., 5547 E. Ravenswood Ave., Chicago, Ill.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

Parke, Davis & Co., Detroit, Mich.

E. R. Squibb & Sons Co., 745 Fifth Ave., New York, N.Y.

THYME OIL:

See listings under "Pine Oils & Perfume Oils."

THYMOL IODIDE, IODOFORM:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

New York Quinine & Chemical Works, 50 Church St., New York 7, N.Y.

E. R. Squibb & Son Co., New York, N.Y.

THYMOL, MENTHOL, EUCALYPTOL, CAMPHOR, ETC.:

Chemical Service Corp., 82 Beaver St., New York, N.Y.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

S. B. Penick & Co., 50 Church St., New York, N.Y.

Republic Chemical Corp., 94 Beekman St., New York, N.Y.

TINCTURE GREEN SOAP:

Same firms as under "Camphor Liniments."

TITANIUM DIOXIDE, OXIDE, WATER SOLUBLE (WHITE GRADE SUITABLE FOR A WHITE SHOE POLISH), ETC.:

Barclay Chemical Co., 75 Varick St., New York 13, N.Y.

E. I. Du Pont de Nemours & Co., Pigment Dept., 1007 Market St., Wilmington, Del.

Titanium Pigment Corp., 111 Broadway, New York, N.Y.

Whittaker, Clark & Daniels, 260 W. Broadway, New York, N.Y.

TRICALCIUM PHOSPHATE:

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

United Chemical & Organic Products Div., 345 Hudson St., New York, N.Y.

TRICHLORETHYLENE:

Allied Industrial Products Co., 225 W. 34th St., New York, N.Y.

Chemical Mfg. Co., 444 Madison Ave., New York, N.Y.

Chemical Service Corp., 82 Beaver St., New York, N.Y.

Detrex Chem. Industries, Inc., 14331 Woodrow Wilson, Box 501,
Detroit, Mich.

TRICRESYL PHOSPHATE:

Eston Chemical, 3100 E. 26th St., Los Angeles 23, Cal.

Montrose Chemical Co., 120 Lister Ave., Newark 5, N.J.

Ohio-Apex Inc. Div., Nitro, W. Va.

TRIETHANOLAMINE & PINE OIL:

Barclay Chemical Co., 75 Varick St., New York 13, N.Y.

Doe & Ingalls, 56 Garden St., Everett, Mass.

Dow Chemical Co., Midland, Mich.

Kraft Chemical Co., 917 W. 18th St., Chicago, Ill.

Republic Chemical Corp., 94 Beekman St., New York, N.Y.

Also firms under "Pine Oils."

**TRIETHANOLAMINE OLEATE OR TRIETHANOLAMINE STEARATE, OTHER
EMULSIFIERS (FOR AUTO POLISH, ETC.):**

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York, N.Y.

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

Ninol Laboratories, Prudential Plaza, Chicago, Ill.

Griffin Chemical Co., 1141 S. 14 St., Richmond, Cal.

TRIGAMINE STEARATE:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

A stearic acid ester of Trigamine; a light-colored solid; used as an emulsifying base for creams and lotions where whiteness of the finished product is necessary.

TRIHYDROXYETHYLAMINE STEARATE SPECIAL:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

A stearic acid ester of Trigamine; a light-colored solid; used as "pearly" vanishing creams.

TRIPOLI, BENTONITE, ABRASIVES:

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York 17, N.Y.

TRISODIUM PHOSPHATE, DODECAHYDRATE, TECH. GRADE:

Blockson Chemical Co., Joliet, Ill.
Doe & Ingalls, 56 Garden St., Everett, Mass.
Griffin Chemical Co., 1141 S. 14 St., Richmond, Cal.
Merck & Co., Rahway, N.J.
Monsanto Chemical Co., Phosphate Division, St. Louis, Mo.
Republic Chemical Corp., 94 Beekman St., New York, N.Y.
Victor Chemical Works, 155 N. Wacker Dr., Chicago 3, Ill.

TRITON X-100:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.
Rohm & Haas Co., Philadelphia, Pa.

TUBES, OINTMENT:

Drug Package Inc., 241 Glasgow Ave., St. Louis, Mo.

TURPENTINE, SPIRITS, GUM, ETC.:

Dixie Pine Products Co., P.O. Drawer 470, Hattiesburg, Miss.
Fritzsche Bros., 76 Ninth Ave., New York, N.Y.
Magnus, Mabee & Reynard, 16 Desbrosses St., New York, N.Y.

TURTLE OIL:

Magnus, Mabee & Reynard Inc., New York, N.Y.
Welch, Holme & Clark Co. Inc., 1 Hudson St., New York, N.Y.

TWEEN 20, 60, 80, ETC.:

Atlas Powder Company, Wilmington 99, Del.

TYROTHRIN OR BACITRACIN:

Commercial Solvents Corp., 260 Madison Ave., New York 16, N.Y.
Nepera International Corp., 37 Wall St., New York, N.Y.
S. B. Penick & Co., 50 Church St., New York, N.Y.

ULTRASINE OR DEO BASE (DEODORIZED KEROSENE):

Atlantic Refining Co., 260 S. Broad St., Philadelphia, Pa.
Cities Service Petroleum Co., Bartlesville, Okla.
Shell Oil Co., 50 W. 50th St., New York, N.Y.
Sinclair Chem. Inc., 600 Fifth Ave., New York, N.Y.
Standard Brands, Inc., 625 Madison Ave., New York, N.Y.

ULTRAWET:

Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York, N.Y.
Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

UREA:

American-British Chemicals Supplies, 180 Madison Ave., New York, N.Y.

Barclay Chemical Co., 75 Varick St., New York, N.Y.

Doe & Ingalls, 56 Garden St., Everett, Mass.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

USED & REBUILT MIXING & SIFTING MACHINES:

See firms for "Machinery, Mixing & Sifting, Used and Re-built."

VANILLA BEANS, MICRONIZED, POWDERED, ETC.:

Dodge & Olcott Co., 180 Varick St., New York, N.Y.

Fritzsche Bros. Inc., 76 Ninth Ave., New York, N.Y.

Magnus, Mabee & Reynard, 16 Desbrosses St., New York, N.Y.

Monsanto Chemical Co., 1700 S. 2nd St., St. Louis, Mo.

S. B. Penick & Co., 50 Church St., New York, N.Y.

VANILLIN, VANILLA POWDER, FINE CRYSTALS, ETC.:

Battle Creek Extract Co., Battle Creek, Mich.

Dodge & Olcott Co., 180 Varick St., New York, N.Y.

Fritzsche Bros. Inc., 76 Ninth Ave., New York, N.Y.

S. B. Penick & Co., 50 Church St., New York, N.Y.

VEGETABLE OILS, COTTON, SOYA BEAN, ETC.:

Kraft Chemical Co., 917 W. 18th St., Chicago, Ill.

Pacific Vegetable Oil Corp., 62 Townsend St., San Francisco, Cal.

Southern Cotton Seed Co., 11 Broadway, New York, N.Y.

Spencer Kellogg & Sons, Buffalo, N.Y.

See also firms under "Cottonseed Oils."

VIRIFOAM A:

Glyco Products Co. Inc., 350 Fifth Ave., New York, N.Y.

A powdered foaming agent for the production of foam in soapless shampoos, bath preparations, bath powders, etc.

VITAMINS A & D, ALL FORMS:

Hoffman-La Roche Inc., Nutley, N.J.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

Charles Pfizer & Co. Inc., 630 Flushing Ave., Brooklyn, N.Y.

Vitamins Inc., 508 W. 58th St., Chicago, Ill.

VOLCANIC ASH:

Clark, Whittaker & Daniels, Inc., 260 W. Broadway, New York, N.Y.
Hummell & Gillespie, 225 Broadway, New York, N.Y.
Kraft Chemical Co., 917 W. 18th St., Chicago, Ill.
Charles A. Wagner Co. Inc., 4455 N. 6 St., Philadelphia, Pa.

WATER-SOLUBLE GREEN DYE:

Brooklyn Color Works, Inc., Brooklyn, N.Y.
General Dyestuff Corp., 435 Hudson St., New York, N.Y.
Monsanto Chemical Co., St. Louis, Mo.

WAXES, BEESWAX, CARNAUBA, CERESIN, PARAFFIN, ETC.:

Barclay Chemical Co., 75 Varick St., New York, N.Y.
Industrial Raw Materials Co., 575 Madison Ave., New York, N.Y.
Kraft Chemical Co., 917 W. 18th St., Chicago 8, Ill.
S. B. Penick & Co., 50 Church St., New York, N.Y.

WHITE MINERAL OIL 65-75:

See listings under "Mineral Oil."

WITCH HAZEL, DISTILLED EXTRACT:

E. E. Dickinson & Co., Essex, Conn.
Merck & Co., Rahway, N.J.
S. B. Penick & Co., 50 Church St., New York, N.Y.

XYLENE (XYLOL):

American Mineral Spirits Co., Mountain Ave., Murray Hill, N.J.
Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York, N.Y.
Crowley Tar Products Corp., 271 Madison Ave., New York, N.Y.
Distillation Products Industries, Rochester, N.Y.
Koppers Co. Chemical Div., Pittsburg 19, Pa.
Phillips Petroleum Co., Special Products Div., Bartlesville, Oklahoma

YEAST, BREWER'S POWDER:

Anheuser-Busch Inc., St. Louis, Mo.
Federal Yeast Corp., Colgate Creek, Baltimore, Md.
National Yeast Corp., Belleville, N.J.
Also firms as supply "Malt Powder."

YELLOW CERESINE WAX:

See "Waxes."

ZINC CHLORIDE:

J. T. Baker Chemical Co., Phillipsburg, N.J.

Jordan Co., 51st & Merrimac Ave., Chicago, Ill.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

ZINC OXIDE:

Barclay Chemical Co., 75 Varick St., New York 13, N.Y.

New Jersey Zinc Sales Co., 160 Front St., New York 38, N.Y.

ZINC OXIDE POWDER:

American-British Chemical Supplies, 180 Madison Ave., New York, N.Y.

American Zinc Sales Co., 1522 Paul Brown Bldg., St. Louis, Mo.

Mallinckrodt Chemical Works, 2nd & Mallinckrodt Sts., St. Louis, Mo.

Merck & Co., Rahway, N.J.

New York Quinine & Chemical Works, 50 Church St., New York 7, N.Y.

ZINC STEARATE:

E. I. Du Pont de Nemours & Co., Wilmington, Del.

Harshaw Chemical Co., 1945 E. 97th St., Cleveland, Ohio

INDEX

This INDEX combines the characteristics of a GENERAL, CROSS and CLASSIFIED INDEX of Formulas, Materials, etc., exclusive of the *Sources of Supply* which is given separately in alphabetical order.

A

- Abopon, 321
- Abrasive, 321
- Absorbent application, veterinary, 270
- Absorbent liniment, 241
- Absorption bases, 321
- Acetanilide, products containing, 317
- Acetate, 322
- Acetic acid, 246, 322
- Acetone, 322
- Acetophenetidine, 163, 164, 166, 317, 322
- Acetyl salicylic acid, 163, 164, 166, 322
- Acid, ascorbic, 322
- Acid, dyspepsia and indigestion, tablets, 203
- Acid, phosphoric, 323
- Acid, tartaric, 323
- Acimul, 323
- Active ingredient, 323
- Aerosol propellents, 340
- Aftershave, skin freshner lotion, 146, 147
- Aftershave stick, 127
- Aftershave sunburn, 147
- Aggregate, 323
- Agitators, 323
- Air deodorizer (wick type), 90
- Alcohol, ethyl, all forms, 323
- Alcohol, isopropyl, 323
- Alcoholic flavors, 323
- Aldo, 28, 33, etc., 124, 126, 323
- Alkanet, chlorophyl, oil-soluble, 323
- Alkyl aryl sulfonate, 324
- Almond flavor, 129
- Almond-honey lotion, 144
- Alterative, resolvent compound, 240
- Alterative, sedative compound, 239
- Alum, 324
- Aluminum chloride, 324
- Aluminum cleaner polish, 72
- Aluminum hydroxide gel, paste form, 324
- Aluminum metal, turning, punching, 324
- Aluminum sulfate NF, 324
- Amerchol L-101. See Modulan, 324
- Amine soap, 90, 91
- Aminoacetic acid, 324

- Ammonia, 28% anhydrous, etc., 325
- Ammoniated tooth paste, 159
- Ammonium chloride, commercial, 325
- Ammonium chloride, technical, granular, 325
- Ammonium nitrate, technical, 325
- Ammonium stearate, anhydrous, 325
- Analgesic, alkalizing, effervescent tablets, 164, 165
- Analgesic balm, modified, 223, 224
- Analgesic liquid liniment, 242
- Analgesic, rheumatic, liquid, 239
- Analgesic tablets, 163, 164, 166
- Analgesic tablets, laxative, 166
- Aniline colors, 325
- Anise seed, 325
- Antacid, demulcent, adsorbent, 211
- Antacid, gastric, alkalizer powder, 203
- Anthelmintics, carbon tetrachloride, santonin, aspidium, chenopodium, etc., 314-317
- Antifreeze mixture, automobile, 82
- Antipyrine, 317
- Antiseptic, astringent solution, 250
- Antiseptic baby oil, 253
- Antiseptic balm, 230
- Antiseptic blood-clotting powder, 268
- Antiseptic deodorant, disinfectant spray, 65, 229
- Antiseptic deodorant foot powder, 257
- Antiseptic disinfectant germicide, veterinary, 271
- Antiseptic dressings, 234, 235
- Antiseptic healing analgesic oil compound, 231, 232, 234
- Antiseptic healing liquid, 233, 234, 235
- Antiseptic healing oil, 232
- Antiseptic healing ointment, 218
- Antiseptic healing powder, 236
- Antiseptic powder, alkaline, soluble, 252
- Antiseptic shampoo, 151
- Antiseptic solution, 251
- Antiseptic tonic shampoo, 155
- Appendix, 304
- Aquaphor, 326
- Aquaresin GMC-Glycol, 326
- Arlacel, 20, 83, etc., 326
- Aromatic powder, 326
- Arsenic, 318
- Artificial apricot oil, 38, 288
- Artificial catawba grape oil, 40
- Artificial cherry oil, 39, 291
- Artificial concord grape oil, 40, 290, 291
- Artificial peach oil, 40, 289
- Artificial pineapple oil, 40, 291
- Artificial raspberry oil, 43, 44, 292
- Artificial strawberry oil, 45, 293
- Asbestos, 297, 298, 326
- Asbestos roof coating, 297, 298
- Ascorbic acid, 322, 326
- Asphalt, 326
- Asphalt emulsions, road-paving, 301, 326
- Asphaltum, 326
- Astringent carminative compound, liquid, 212
- Astringent healing compound, 232
- Astringent intestinal powder, 261
- Astringent lotion, clear, 229
- Astringent lotion, mild, 147
- Astringent lotion, strong, 146
- Astringent throat gargle, 249
- Atlas G-1050, G-1425, etc., 326
- Atomizer pressure bombs, 327
- Atropine, 315

Auto body polish, cleaner, 73
Auto polish, cleaner, 72
Automobile antifreeze mixture, 82
Automobile, furniture, floor,
leather, high-gloss carnauba-wax
polish, 90
Automobile polishes, 76, 90
Automobile wax liquid polishes,
74, 82

B

Baby oil, antiseptic, 253
Baking powder, 14
Baking powder, alum, 20
Baking powder, cream of tartar, 19
Baking powder materials, 327
Baking powder, phosphate, 19
Baking powder, phosphate-alum,
20
Balm, analgesic, modified, 223, 224
Balm-creme, greaseless, 112
Balm-creme lotion, 143
Balm, healing, antiseptic, 230
Balsams, fir, Peru, etc., 327
Base powder for tablets, 182
Bath milk, pine-oil, 148
Bath oil, pine-needle, soluble, 148
Bath powder, bubble, 148
Bedbug, roach, ant, moth insecti-
cide, 66
Benadryl hydrochloride, 327
Bentonite clay, 327
Benzocaine, 327
Benzoic acid, 328
Benzol, 327
Benzol, petroleum naphtha, 328
Beverage, chocolate-flavored nu-
tritive powder, 22, 23
Beverage, chocolate-flavored tonic,
184
Beverage, cocoa-flavored nutritive,
23
Beverage extract, carbonated, cola,
279
Beverage extract, carbonated, fruit
flavor compound, 277
Beverage extract, carbonated,
grape compound, 280
Beverage extract, carbonated, kola
compound, 277, 278
Beverage extract, carbonated, kola,
ginger-ale compound, 279
Beverage extract, carbonated, mint
kola compound, 279
Beverage, extract, modified forms,
278
Beverage, orange, cider compound,
285
Beverage, root-beer extract, 286
Beverages, carbonated extracts,
fruit oils, 285
Bile salts compound tablets, 200
Biscuit flour, self-raising, 19
Bismuth salts, subgallate, subni-
trate, etc., 328
Bleach, deodorant, disinfectant, 62
Bleach, nylon, silk, wool, etc., 61
Blended fruit flavor, 33
Blind, Venetian, cleaner, 94
Blood-clotting powder, antiseptic,
veterinary, 268
Boiled linseed oil, 328
Boracic acid, 328
Borax, all forms, 328
Boric acid, 328
Bottles, bottle caps, plastic caps,
etc., 328
Boxes, folding, powder, paper,
metal, ointment, etc., 329
Brass metal polish, 70
Brewer's yeast, 329
Bromides, 317
Bromo acid G, Y, etc., 329
Brown dye, petroleum, 329
Bubble-bath powder, 148

Burn jelly gelatin, tannic acid, 230
 Butyl "Carbitol", 330
 Butyl "Cellosolve", 329
 Butyric acid, edible, 330

C

Caffeine, 330
 Cake flour, 330
 Cake frosting, quick chocolate fudge, 16
 Cake frosting, quick coconut fudge, 15
 Cake frosting, white, 15
 Cake mix, angel, 15
 Cake mix, fudge, 14
 Cake mix, spice, 14
 Cake mix, white, 13
 Cake mix, yellow, 14
 Calcium carbonate, precipitated, 330
 Calcium chloride flakes, 330
 Calcium glycerophosphate, 330
 Calcium hypochlorite, 330
 Calcium pantothenate, 331
 Callous skin remover, 257
 Calomel, 331
 Camphor, 331
 Camphor liniment, 331
 Cans, metal-end paper, 331
 Cans, paper, sifter-top, 331
 Cans, tin screw-cap, friction-top, etc., 331
 Canton soy, 331
 Caramel coloring, 331
 Caramel laxative compound, 210
 Carbitol, Carbitol solvent, etc., 332
 Carbolic acid, phenol, 332
 Carbon black, 332
 Carbon tetrachloride, 332
 Carbonated-beverage extract, 280
 Carbonated-beverage extract, cola, 279
 Carbonated-beverage extract, fruit compound, 277
 Carbonated-beverage extract, grape compound, 280
 Carbonated-beverage extract, kola compound, 277, 278
 Carbonated-beverage extract, kola, ginger-ale compound, 278
 Carbonated-beverage extract, mint kola compound, 279
 Carbonated-beverage extract, orange-cider compound, 285
 Carbonated beverages, 276
 Carbowax 1000 monostearate, 332
 Carboxymethylcellulose, 332
 Cardamon seed, powdered, 332
 Carnauba wax No. 1, 333
 Carnauba wax, high-gloss, 90
 Carotene, 332
 Cartons, folding paper, 333
 Cascara sagrada extract, 333
 Casein dispersion, 81
 Casein, inedible, 333
 Castile soap, 333
 Castor oil, 314
 Castor oil, blown, 333
 Castor oil, sulfonated, 333
 Cathartic, laxative drug, 314
 Catnip, fennel compound, modified, 214
 Cattle tonic, 265
 Caustic soda, 334
 Celery liquid flavor, 21
 Celery salt, 26
 Celery seed and garlic, 334
 Cellosize WSLM, 334
 Cement, concrete setting compound, 300
 Cement for crockery, pottery, 300
 Cement iron, 300
 Cement paint, waterproofing, 301
 Cements, Incodel, Incor, 334
 Ceraflux, 334
 Ceresin wax, 334
 Cerulose (starch), 334

- Cetyl alcohol flakes, 334
Chalk, prepared, precipitated, 334
Chemicals, medicinal, technical, analytical, 335
Cherry oil, artificial, 39, 291
Chest oil, vaporizing, 253
Chest salve, vapor-type, 225
Chick food, starter, developer, 273, 274
Chill and fever remedy, 215
Chlorates, 318
Chloretone, 335
Chlorinated solvent, 335
Chlorobutane (chlorene), 335
Chlor-thymol (chlorothymol), 335
Chocolate liquor, 335
Chocolate-flavored laxative, 204
Chocolate-flavored, nutritive beverage, powder, 22
Chocolate-flavored tonic beverage, 182
Chocolate-flavored vitamin compound, 181
Cholesterin (C.P.), 335
Choline bitartrate, 335
Chrysarobin, goa powder, 318
Clay, 336
Cleaner and whitener, white-shoe, 97
Cleaner, copper, stainless-steel, brass, 71
Cleaner, dental-plate, 161
Cleaner, drain-pipe, 100
Cleaner, glass, 93
Cleaner, hand, powder, 59
Cleaner, household sanitary, 55
Cleaner, naphtha, floor, 85
Cleaner, oven, 95, 96
Cleaner, paint, 93, 94
Cleaner, polish, furniture, wax emulsion, 86
Cleaner, polish, white shoe, 97
Cleaner, polishing wax, glass, metal, 92
Cleaner, Venetian-blind, 94
Cleaner, window, glass, 93
Cleaner's naphtha, 336
Cleaning compound, metal, 303
Cleaning crystals, 56
Cleaning emulsion, machinery, woodwork, 302
Cleaning emulsion, tar-removing, 303
Cleaning emulsion, textiles, machinery, etc., 303
Cleaning fluid, noninflammable, 49
Cleaning fluids, dry, 49
Cleaning powder, 94
Cleaning, renovating compound, 47
Cleaning, scouring powder, washing, 54
Cocoa butter, odorless, etc., 336
Cocoa powder, 336
Cocoa-flavored nutritive beverage, 23
Coconut oil, 336
Coconut oil fatty acids, 336
Coconut olive shampoo, 154
Coconut shampoo, 154
Cod liver oil compound, extract of, 180
Cod liver oil tonic, 171
Colic remedy, veterinary, 266
Collapsible tubes, 336
Collodion, 336
Colloid mills, homogenizers, mixers, etc., 336
Colognes, solid, stick, 126, 127
Colors for shoe polishes, 337
Compound, cleaning and renovating, 47
Compound, dish and glass washing, 57
Compound, liquid starch, 58

- Compound, washing, cake and paste form, 52, 53
Concentrate, vitamin liquid, 168
Concrete, 301
Copper arsenite, 337
Copper, stainless-steel, brass cleaner, 71
Copper sulfate, 337
Corks, 337
Corn remedy, 255
Corn sugar, 337
Cosmetic colors, 337
Cosmetic Food & Drug Act, 305
Cosmetic preparations, 101
Cottonseed oil, 337
Cough and cold capsules, veterinary, 269
Cough syrups (see also expectorants), 185-199
Coughs due to colds, caution, F.D.A., 318
Cow tonic, 263
Cream, absorption-base, 117
Cream, all-purpose, 105
Cream, almond, 108
Cream, cholestrol, hair treatment, 128
Cream, cleansing, 112, 113
Cream, cleansing, liquefying, hard, opaque, 114
Cream, cleansing, liquefying, medium, opaque, 114
Cream, cleansing, liquefying, medium, translucent, 114
Cream, cleansing, liquefying, soft, translucent, 113
Cream, cleansing, liquid, 113
Cream, cleansing, liquid, hand lotion, 115
Cream, cleansing, water-soluble, 114
Cream, cold, 107, 109, 110
Cream, cold, basic, 108
Cream, cold, greaseless, 111
Cream, cold, petrolatum, 110
Cream, cucumber, 108
Cream, deodorant, 125
Cream, emolient, 116
Cream, facial, finest, 117
Cream, facial, three-purpose, 106
Cream, four-purpose, 104
Cream, general-purpose, toilet, 105
Cream, greaseless, 110, 111
Cream, hair-conditioner, 129, 131
Cream, hair-dressing, 130
Cream, hand, 123, 124
Cream, lemon, 108
Cream, liquid hair-dressing, 130
Cream, lubricating, nourishing or tissue, 106
Cream, menthol, cooling, 108
Cream, mentholated, solid massage, 121
Cream, nourishing, 105
Cream of tartar baking powder, 19
Cream, peach, 108
Cream shampoo, solid, 152
Cream shampoo thickener, hair conditioner, 152
Cream, shaving, brushless, 121, 122, 123
Cream, shaving, lathering, 122
Cream, skin balm, greaseless, 112
Cream, skin tissue, 107
Cream, solid, hair-dressing, anti-septic, antidandruff, 128
Cream, strawberry, 108
Cream, tissue, 106, 108
Cream, tissue, nonalkaline, 106
Cream, vanishing, 118, 120
Cream, vanishing, hard, 119
Cream, vanishing, medium, 119
Cream, vanishing, mentholated lemon, 120
Cream, vanishing, nonpearly, 120
Cream, vanishing, soft, 119

Creams, deodorant, 127
Creams, hair-conditioner, 129
Creams, hand-protector, 124
Creme balm, greaseless, 112
Cremogen A, 338
Creolin, Pearson-type, 63, 338
Creosote oil, cresol, cresylic acid, etc., 338
Cresol disinfectant, soluble, 62, 63
Cresol disinfectant soluble, lysol-type, 62
Cresols, creosote, guaiacol, etc., 316
Crystals, cleaning, 56
Cylinder oil, light, 338

D

D.D.T., 66, 338
Demulcent, antacid and absorbent liquid, 211
Dental-plate cleaner, 161
Dental-plate compound, powder, paste, 161
Deodorant creams, 125
Deodorant spray, 90
Deodorant stick, 126
Deodorizer, air, wick-type, 89
Deramin, 338
Derris resin, 339
Detergent powder, 53, 57
Detergent sudsing powder, 55
Detergent, synthetic, 92
Dextrose, cerulose, all forms, 339
Diastase, 339
Dibasic ammonium phosphate, 339
Dichlorodifluoromethane (Freon), 339
Digest, Federal Food, Drug, Cosmetic Act, 305
Digitalis, squills, etc., 318
Diglycol laurate, 339
Dihydrostreptomycin, 339
Dimethyl phthalate, 339

Dip, sheep, 273
Dipotassium hydrogen phosphate, 340
Dipropylene glycol salicylate, 340
Dish and glass washing compound, 57
Disinfectant, bleach, deodorant, 62
Disinfectant, cresol, soluble, lysol-type, 62, 63
Disinfectant, deodorant emulsion, for textiles, 303
Disinfectant, germicide, insecticide, spray, 65
Disinfectant, pine-oil, 64
Disodium hydrogen phosphate, 340
Dispersion, casein, 81
Dispersion, Manila loba resin, 80
Dispersion, natural resin, 80
Dispersion, shellac, 81
Diuretic compound, liquid, 237
Diuretic tablets, compound, 236
Dolomitic limestone, 340
Dosage, rules for figuring, 304, 305
Drain, clogged, opener powder, 99
Drain pipe cleaner, 100
Dressing, antiseptic, first-aid, 234
Dressing, antiseptic, oil and dry, 234, 235
Dressing, floor, liquid wax, 84
Dressing, shoe, colors for, 96
Dry cleaning fluids, 49
Du Pont nigrosine, nigrosine SSJ powder, etc., 340
Duponol (sodium lauryl sulfate), 340
Duponol D paste, G, LS, etc., 340
Dyes, alcohol soluble, etc., 340
Dyspepsia acid tablets, 203

E

Eczema, poison-ivy, remedy, 246, 247
Eggs, dried, egg yolks, egg whites, 340

Eliminator, scratch polish, 87
Elixir, vitamin complex B, 167
Elixir, vitamin-iron-liver, 167
Emulsified shortening, 14, 364
Emulsifiers, mechanical, 341
Emulsion flavors, 28
Emulsion, furniture-polish, 86
Emulsion, vitamin, orange-flavored, 180
Emulsion, wax, furniture cleaner, polish, 86
Ephedrine alkaloid, 341
Ethyl acetate, 341
Ethyl alcohol, all forms, 341
Ethylene dichloride, 341
Eucalyptol, 341
Expectorant compound tonic, 196
Expectorants, 185-199
Expeller, worm, hog tonic, 263
Exterminator, fly, mosquito, moth, etc., 67
Exterminator, fly, mosquito, moth, etc., with D.D.T., 67
Exterminator, moth preventive, 68
Exterminator powder, roach, 66
Extract, cod liver oil compound, 180
Extract compound, wine and beef, 179
Extract, flavoring, blended fruit, 32
Extract, flavoring, vanilla fruit blend, 32
Extract, ginger-ale, 281-285
Extract, grape, compound, 280
Extract, lemon, pure, terpeneless, 33
Extract, lemon, soluble, 287
Extract, root-beer, 286
Extract, vanilla-bean, pure, 36
Extract, vanilla-bean, true, 36
Extracts, 27
Extracts, flavoring, alcoholic base with fruit juice, 30, 31

Extracts, flavoring, mixed fruit, 31
Eye drops, 254, 313
Eye lotions, 254, 255, 313

F

Fabrics, bleach for nylon, rayon, etc., 61
Face lotion, 140
Face powder, liquid, 149
Fair practices, Food and Drug Act, 319
Fatty amide condensates, 341
Female tonic, 179
Ferrous gluconate, 341
Fertilizer, garden, farm, 295
Fever, distemper remedy, veterinary, 267
Fig syrup compound, laxative, 207
Finish, old, removing liquid, 50
Flavor, almond, 29
Flavor, blended fruit, 33
Flavor, butterscotch, household, 34, 35
Flavor, celery, liquid, 25
Flavor emulsions, 28, 29
Flavor, fruit vanilla blend, 32
Flavor, gravy, 25
Flavor, liquid, garlic, 25
Flavor, maple, improved, 34
Flavor oil, 342
Flavor, orange, 29
Flavor, special oils, 342
Flavor, vanilla, nonalcoholic, artificial, 36
Flavor, vanilla, nonalcoholic, true, 37
Flavor, walnut, artificial, 35
Flavoring extract, lemon, orange, lime, 32
Flavoring extract, lemon, pure, 33
Flavoring extract, mixed fruit, 31
Flavoring extract, vanilla compound, 37

- Flavoring extract, vanilla-fruit blend, 32, 33
Flavoring extracts, 27
Flavoring extracts, vanillin, modified, 37
Flavoring extracts with fruit juice, 30, 31
Flavors, alcoholic, amount of oils, 27
Flavors, paste for essential oils, basic formula, 30
Flea powder for cats, dogs, 275
Flexoresin BI, 342
Floor cleaner, naphtha, 85
Floor dressing, liquid wax, 84
Floor liquid wax, self-polishing, 85
Floor polish, dry lustrous, 84
Floor polish, rubless, water-resistant, spot-resistant, triethanolamine, 77, 78, 79
Floor wax, no rubbing, linoleum, etc., 83
Flour, biscuit, self-raising, 19
Flour sifting, weighing machinery, 342
Flours, pancake, 17, 18
Flower or pine perfume oils (aerosol), 342
Fluid tolu, soluble, 342
Fluorescent dyes, 342
Fly, mosquito, moth, etc., exterminator, 67
Fly, mosquito, moth, etc., exterminator, with D.D.T., 67
Fly preventative for horses, cattle, 273
Folic acid, 342
Food colors, 342
Food, Cosmetic and Drug Law, 305, 307, 308
Food products, 13
Foot ointment, analgesic, and deodorant, 226
Foot powder, antiseptic, deodorant, 257
Foreign cosmetic representatives, 343
Formaldehyde, formalin, 343
Frosting, cake, chocolate, fudge, 16
Frosting, cake, quick coconut, 15
Frosting, cake, white, 15
Fruit-oil compound, artificial, 39
Fruit-oil, peach, artificial, cheap, 40
Fruit oils and flavoring materials, 343
Fruit oils, concentrated flavors, 40
Fruit pudding, baked, 21
Fruit pudding, powder, 22
Fruit syrup compound, laxative, 207
Furniture cleaner, polish, wax emulsion, 86
Furniture polish, 87, 88, 89
Furniture polish emulsion, 86
Furniture, woodwork, scratch-eliminating polish, 87
- G**
- Gaduol tonic and stimulant, 171
Garden, farm, fertilizer, 295
Garden, farm, insecticide, 296
Garden spray, insecticide, 296
Gargle, throat, astringent, 249
Garlic flavor, liquid, 25
Garlic salt, 26
Gelatin, edible, 344
Gentian powder, 344
Gilsonite, 344
Ginger oleo-resin, 344
Ginger powder, 344
Ginger-ale essence, 284
Ginger-ale extract, 281-5
Ginger-ale flavor, 282, 284
Glass and metal wax, 92

Glass cleaner, 93
Glass jars, wide-mouth, etc., 344
Glucose, 344
Glycerin, 344
Glycerol, 344
Glycerol monooleate, 345
Glycerophosphate, calcium, sodium, etc., 344
Glyceryl tristearate, monostearate, etc., 345
Glyco wax A, 346
Glycomel, 345
Glycopon AA, S, 346
Glycostearin, 346
Granular sal ammoniac, 346
Grape oil, artificial, catawba, 40, 290, 291
Graphite, 346
Gravy flavor, 25
Gum tragaccol, 347
Gums, tragacanth, Indian karaya, etc., 347

H

Hair-conditioner cream, 131
Hair-conditioner, cream shampoo thickener, 152
Hair-dressing cream, solid, antiseptic, antidandruff, 128
Hair-dressing lotion, 131
Hair emulsion, 134
Hair pomade, 131
Hair-setting concentrate, 137
Hair-setting fluid, 137
Hair-setting lotions, 136
Hair shampoo, detergent and synthetic, 157
Hair soap shampoos, liquid, cream, 155
Hair tonic scalp lotion, 132, 133
Hair-treatment cream, cholestrol, 128

Hair-wave fluid, stringy, 134
Hair-wave set, 139
Hand-cleaner powder, 59
Hand creams, 123, 124
Hand, face lotions, 140, 141, 142
Hand protective creams, 124
Hand-soap powder, 59
Harcol, 347
Hay fever, asthma remedy, 215
Healing antiseptic liquid, 233, 234, 235
Healing antiseptic powder, 236
Healing astringent, 232
Healing balm, antiseptic, 230
Healing oil, antiseptic, 231, 232, 234
Healing oil, antiseptic compound, veterinary, 271
Healing powder, veterinary, 236, 268
Healing skin ointment, veterinary, 218, 269
Heave powder, veterinary, 273
Hectograph ink remover cream, 60
Herb, vitamin B₁ compound, 173
Herbs, roots, flowers, barks, etc., 347
Hexachlorophene, 347
Hog tonic, worm expeller, 263
Home permanent-wave refill, 135
Homogenizers, 347
Hoof oil, 272
Hoof ointment, 272
Horse tonic, 264
Hospital and household spray, etc., 229
Household formulas, 47
Household sanitary cleaner, 55
Hydrochloric acid (muriatic), 347
Hydrophillic muciloid of plantago oraba, 347
Hysterene T-70 fatty acid, 347

I

Incor, Inco-del, 348
Infusorial earth (Kieselguhr), 348
Ink remover cream, hectograph, 60
Ink stain removers, 51
Insecticide, bedbug, roach, ant, moth, 66
Insecticide, garden, farm, 296
Insecticide, garden spray, 296
Insecticide paste, 297
Intestinal astringent powder, veterinary, 261
Iodine, iodides, 316
Iron, ammonium citrate, 348
Iron cement, 300
Iron chloride tincture, 348
Iron fillings, iron powder, reduced iron, etc., 348
Iron peptonate, vitamin B₁ compound, 177
Isohol, 348
Isopropanol, 348
Isopropyl citrate, 349
Ivory black, 349

J

Japan drier, 349
Japan wax, 349
Jars, cosmetic, ointment, etc., 349

K

Kaolin, 349
Kaolin, pectin mixture, 213
Kerosene, 349
Kink straightener, 139

L

Labeling of drugs, 310
Labels, 349
Laboratory equipment, 350
Lanolin absorption base, 350
Lanolin, anhydrous, 350
Latex emulsions, all grades, 350

Laundry wax, self-emulsifying, 58
Laxative caramels, compound, 210
Laxative cathartic, saline compound, 211
Laxative, children's, 206
Laxative, chocolate-flavored, 204
Laxative emulsion, 204
Laxative fig-syrup compound, 207
Laxative fruit-syrup compound, 207
Laxative syrup compound, 205, 208, 209
Laxative tablets, compound, 209
Laxative tonic powder, veterinary, 266
Laxative wafers, 210
Leather polish, 98
Lecithins, 350
Lemenone, 350
Lemon cream lotion, 145
Lemon extract, pure, 37
Lemon extract, soluble, 287
Lemon extract, terpeneless, pure, 33
Lemon rinse, 139
Lice killer, poultry, 274
Light mineral oil, 350
Limestone, powdered, marble dust, 350
Liniment, 240-246
Liniment, absorbent, 241
Liniment, compound, 240, 243, 244, 245
Liniment, cream oil, white, 246
Liniment, external and internal, 241
Liniment, external use only, 242
Liniment, liquid analgesic, 242
Liniment, udder, veterinary, 260
Liniment, veterinary, 270
Linseed oil, boiled, raw, 351
Lip pomade, molded, 150
Lipstick, basic, 149

Lipstick-stain remover, 150
 Liquid compound starch, 58
 Liquid, old-finish removing, 50
 Lithopone, 351
 Liver-extract concentrates, etc., 351
 Lotion, almond, honey, 144
 Lotion, astringent, clear, 229
 Lotion, astringent, strong and mild, 146, 147
 Lotion, balm-creme, 143
 Lotion, face, 140
 Lotion, hair-dressing, 131, 133
 Lotion, hand and face, 140, 141, 142
 Lotion, lemon-cream, 145
 Lotion, milky, 147
 Lotion, mosquito-repellent, 257
 Lotion, permanent-wave, 134
 Lotion, poison ivy, oak, etc., 246, 247, 248
 Lotion, scalp, 132
 Lotion, skin-freshener aftershave, 146
 Lotion, skin-massage oily, 228
 Lotion, sunburn and aftershave, 147
 Lotion, suntan insect-repellent, 143
 Lotions, hair-setting, 136
 Lotions, hand and face, 140, 141, 142

M

Mace, 351
 Machinery, cleaning emulsion for textile, 303
 Machinery, cleaning emulsion for woodwork, 302
 Machinery, mixing, sifting, etc., 351
 Magnesium stearate, 351
 Malt, powder, syrup, etc., 351
 Manganese metal, 352
 Manganese resinate, 352

Mange remedy, 256
 Manila loba B resin dispersion, 352
 Manufacturers, packers, distributors of cosmetics, 319
 Maple flavor, improved, 34
 Marshmallow paste creme topping, 216
 Mascara, 151
 Mastitis ointment for cows, 261
 Measuring agents, 352
 Medicinal preparations, 163
 Menthol, 352
 Metal cleaning compound, 303
 Metal polish, noninflammable, 69
 Methanol, 95%, 99%, etc., 352
 Methionone, 352
 Methocell, 352
 Methyl cellulose, fine powder, 352
 Methyl salicylate, 353
 Methylene chloride, technical, 353
 Mica powder, 353
 Milcol, 353
 Milk, powdered, skimmed, whole dry, etc., 353
 Milk sugar, 353
 Mineral oil, light, all types, 353
 Mineral oil, preparations containing, 315
 Miscellaneous formulas, 294
 Mix, angel cake, 15
 Mix, fudge cake, 14
 Mix, spice cake, 14
 Mix, white cake, 13
 Mix, yellow cake, 14
 Mixers, powder, heated, steam-jacketed, etc., 354
 Mixture, automobile antifreeze, 82
 Modulan, 354
 Mold inhibitors, 354
 Moldex, 354
 Monoethanolamine, 354
 Monoglyceride, 354
 Monsel salt, 354

Morpholine, 355
Mosquito control spray, 296
Mosquito repellent, 257, 258
Mosquito repellent lotion, 257
Mosquito repellent oil, 258
Moth preventive, exterminator, 68
Mothproofing, moth repellent, 68
Mothproofing solution, 68
Mouthwash, 251
Muciloid, hydrophyllic powder, 205
Mulsene, 355
Mustard, fancy table, 24
Mustard, medium choice, table, 25
Mustard ointment, compound, 223
Mustard seed, spices, etc., 355

N

"Nacconal" detergent (NRSF), 355
Naphtha, heavy, Stoddard, fluid, 355
Naphthalene, 355
Naphthol yellow S, 355
Nerve sedative compound, 238
Nicotinamide, 355
Noninflammable cleaning fluid, 49
Nose drops, nose oil, 255, 315
Nutrient tonic, 178
Nutritive tonic and growth stimulant, 170
Nylon, longer wear spray, 69

O

Ocenol, 355
Oil, antiseptic, 234
Oil, apricot, artificial, 38, 288
Oil, baby antiseptic, 254
Oil, bath, pine-needle, soluble, 148
Oil, Canada snake-root, 355
Oil, catawba-grape, artificial, 40
Oil, cedar-leaves, cedar-wood, 356
Oil, cherry, artificial, 39, 291

Oil, cinnamon, pine pumillius, etc., 356
Oil compound, antiseptic healing, 231, 232
Oil compound, healing, veterinary, 271
Oil, concord-grape, artificial, 40, 290, 291
Oil, fruit compound, artificial, 39
Oil, healing, antiseptic, 231, 232, 234
Oil, hoof, 272
Oil, lavender-spike, 356
Oil, mosquito-repellent, 258
Oil, peach, artificial, 40, 289
Oil, peach, artificial, cheap and simple, 40
Oil, pineapple, artificial, 40, 291
Oil polishes, 73
Oil, raspberry, artificial, 43, 44, 292
Oil, raspberry, artificial, finest, 44
Oil, sassafras, 356
Oil, strawberry, artificial, 45, 293
Oils, table of quantity for flavors, 27, 30
Oils, volatile, effect on urinary tract, 315
Ointment, A & D, 221
Ointment, antiseptic, cooling, 227
Ointment, capsicum, 224
Ointment, carbolic compound, 219
Ointment, cream, medicated, 228
Ointment, foot, 226
Ointment, healing, skin, veterinary, 218, 269
Ointment, healing, soothing, antiseptic, 218, 219
Ointment, hoof, 272
Ointment, mastitis, for cows, 261
Ointment, mustard compound, 223
Ointment, pile treatment, 222
Ointment, skin, 220

Ointment, skin, compound, 221
 Ointment, udder, for cows, 259
 Ointment, veterinary skin, 270
 Ointments, antiseptic, healing, 216,
 217, 218, 220
 Old-finish removing liquid, 50
 Oleic acid, 356
 Oleomargarine, vegetable, 20, 306
 Oleoresin ginger, 356
 Olive oil, 356
 Ondulum, 356
 Orange cider compound, 285
 Orange flavor, 29
 Oven cleaner, 95, 96
 Oxalic acid, 356
 Oxidized microcrystalline wax, 357
 Oxyquinoline, base, sulfate, etc.,
 357
 Ozokerite, 357

P

Paint cleaner, 93, 94
 Paint remover, 50
 Paint, tar remover, 299
 Pancake flours, 17, 18
 Papain, 357
 Parachol, 357
 Paradichlorobenzol, 357
 Paraffin wax, microcrystalline wax,
 357, 358
 "Parasepts" preservatives, 358
 Parastearin, 358
 Paste flavor, basic formula, 30
 Paste or powder, dental-plate com-
 pound, 161
 Paste, marshmallow or creme top-
 ping, 16
 Paste solvent, for grease, dirt, etc.,
 60
 Paste, tooth, 159, 160
 Paste, tooth, ammoniated, 159
 Paste, washing, 52
 Peach oil, artificial, 41

Peach oil, artificial, cheap, 43
 Peanut oil, 289, 358
 Penicillin, 358
 Pepsin, 358
 Pepsin, papain, compound tablets,
 201, 202
 Perfume diluent and solvent, 149
 Perfume materials, oils, colors, etc.,
 358
 Perfume, oils, citronella, etc., 359
 Perfumes, water-soluble, 149
 Permanent wave lotion, 134, 139
 Permanent wave lotion, oily, 138
 Permanent wave refill, 135
 Permanent waving fluid, 138
 Permosalt, 359
 Petrolatum, crude, 359
 Petroleum distillates, 359
 Petroleum naphtha, 359
 Petroleum wax, 359
 Phenacetin, 359
 Phenol or carbolic acid, 359
 Phenolphthalein, 360
 Pigment, cosmetic, 360
 Pile treatment, 222
 Pine oil, perfume oils, 360
 Pineapple flavor, 360
 Pineapple oil, artificial, 291
 Pine-castile shampoo, 157
 Pine-needle bath oil, soluble, 148
 Pine-oil bath milk, 148
 Pine-oil disinfectant, 64
 Pink dye and odorant, masking
 odor, 360
 Plant food, soil conditioner, 294
 Plate cleaner, dental, 161
 Plumbago, graphite, 360
 Poison ivy, oak, etc., lotion, 246,
 247, 248
 Polish, aluminum cleaner, 72
 Polish, auto cleaner, 72
 Polish, brass metal, 70

- Polish, cleaner, automobile body, 73
Polish, cleaner, white-shoe, 97
Polish, dressing, shoe, 96
Polish, floor, dry, lustrous, 84
Polish, furniture, 87, 88, 89
Polish, furniture, emulsion, 86
Polish, high-gloss, carnauba-wax, leather, auto, etc., 90, 98
Polish, metal, noninflammable, 69
Polish, rubless, triethanolamine, floor, 77
Polish, rubless, water-resistant, 78
Polish, scratch eliminator, 87
Polish, silver, cream, 70
Polish, stove, liquid, noninflammable, 99
Polish, wax burnishing, shoemakers', 98
Polish, wax emulsion, furniture cleaner, 86
Polishes, oil, 73, 74
Polishes, rubless, spot-resistant, 79
Polishes, wax, 74
Polishes, wax, automobile, 76
Polishes, wax, cream, liquid, paste, 75
Polycol, 360
Polyethylene glycol 400 distearate, 300 monostearate, etc., 360
Polystyrene, medium-viscosity, 360
Polyvinyl acetate, 361
Pomade, hair, 131
Pomade, lip, molded, 150
Potash, crude, caustic, 361
Potassium chlorate, 361
Potassium hydroxide, 361
Potassium nitrate, technical, 361
Potassium oxalate, 361
Poultry lice killer, 274
Poultry tonic, 266
Powder, alkaline, antiseptic, soluble, 252
Powder, antiseptic, blood-clotting, veterinary, 276
Powder, baking, alum, cream of tartar, phosphate, phosphate alum, 13, 19, 20
Powder, chocolate-flavored, nutritive beverage, 22, 23, 66
Powder, cleaning, for walls and painted surfaces, 94
Powder, dental-plate compound, paste, 161
Powder, detergent, cleaning and scouring, sudsing, washing, 52-57
Powder, face, liquid, 149
Powder, flea, for dogs and cats, 275
Powder, fruit-pudding, 22
Powder, gastric antacid, alkalizer, 203
Powder, hand-cleaner, hand-soap, 59
Powder, intestinal astringent, veterinary, 261
Powder, laxative tonic, veterinary, 266
Powder, muciloid, hydrophylic, 205
Powder, roach exterminator, 66
Powder, scours, 262
Powder, talcum, borated, scented, 161
Powder, tooth, soluble, 160
Powder, veterinary healing, 268
Powder, veterinary, heave, 273
Powder, veterinary, worm, 272
Preservatives, mold inhibitors, 361
Preventing slip of rug, carpet, 92
Preventive and exterminator, moth, 68
Preventative, fly, for horses and cattle, 273
Propylene glycol, 361
Propylene stearate, 362

Prostearin, 362
 Pudding, baked fruit, 21, 22
 Pudding, fruit, powder, 22
 Pulverized feldspar, 362
 Pyrethrum flowers, 362

Q

Quince seed mucilage, 362
 Quinine, cinchonine, cinchonidine, 318

R

Raspberry oil, artificial, 292
 Raspberry oil, finest, artificial, 292
 Red bone marrow, 362
 Regulator, mild compound tablets, 200
 Remedy, colic veterinary, 266
 Remedy, eczema and poison ivy, 246
 Remedy, fever, distemper, veterinary, 257
 Remedy, mange, 256
 Remover, callous-skin, 257
 Remover cream, hectograph-ink, 60
 Remover, ink-stain, 51
 Remover, lipstick-stain, 150
 Remover, paint and tar, 50, 299
 Remover, rust, 50
 Remover, spot and stain, 48
 Remover, tar, 299
 Removing liquid, old-finish, 50
 Repellent, mosquito, 257, 258
 Repellent mosquito lotion, 257
 Repellent mosquito oil, 258
 Restorative tonic, 173
 Rheumatic analgesic liquid, 239
 Rinse, lemon, 139
 Roach exterminator powder, 66
 Road paving asphalt emulsion, 301, 326
 Road spray emulsions, 301
 Roof-coating, asbestos, 297, 298
 Root-beer extract, 286

Rosin, 362
 Rotenone, 362
 Roughage materials, preparations containing, 315
 Rubber, raw gum, 363
 Rubifacients, ammonia, arnica, capsicum, cantharides, ether, etc., 318
 Rubless polish, floor, triethanolamine, morpholine, spot-resistant, water-resistant, 77, 79
 Rug and carpet slip preventing, 92
 Rug shampoo, 90, 91
 Rust remover, 50

S

Saccharin, 363
 Salicylic acid, 363
 Saline, laxative, cathartic, compound, 211
 Salol, 363
 Salt, celery, garlic, 26
 Salve, antiseptic, vaporizing, 226
 Salve, chest, vapor-type, 225
 Sanitary household cleaner, 55
 Sauce, table, seasoned, 24
 Savolin, 363
 Scales, weighing, 363
 Scalp lotion, hair tonic, 132, 133
 Scenting oils, all kinds, 363
 Scouring and cleaning emulsion, 49
 Scours powder, veterinary, 262
 Scratch eliminator polish, 87
 Sedative compound, alterative, 239
 Sedative, nerve, tonic compound, 238
 Self-polishing liquid floor wax, 85
 Sesame oil, 363
 Setting compound, cement, concrete, 300
 Shampoo, antiseptic, 151

- Shampoo, antiseptic tonic, 155
Shampoo, clear liquid, 152, 153
Shampoo, coconut, fruit-scented, 158
Shampoo, coconut-olive, 154
Shampoo, cream, thickener, hair conditioner, 152
Shampoo, oil, 153
Shampoo, pine-castile, 157
Shampoo, rug, amine-soap, 90, 91
Shampoo, soapless foaming, 158
Shampoo, soapless oil, 158
Shampoo, solid cream, 152
Shampoos, hair, detergent, synthetic, 157
Shampoos, hair, liquid and cream, 155
Shaving creams, brushless, lathering, 121, 122, 123
Sheep degreasing, 302
Sheep dip, 273
Shellac, bleached, etc., 364
Shellac dispersion, 81
Shellac resin dispersion, 81, 364
Shoe polish, colorless, dressing, 96
Shoe, white, cleaner and polish, 97
Shoe, white, cleaner and whitener, 97
Shoemakers' wax burnishing polish, 98
Shortening, emulsified, 14, 364
Silica, ground, floated, 364
Silicones, 364
Silver cream polish, 70
Silver salts, preparations containing, 329
Skin freshner lotion, aftershave, 146
Skin lotion, massage, oily, 228
Skin ointment, 220
Skin ointment, compound, 221
Skin ointment, healing, veterinary, 269
Skin ointment, veterinary, 270
Slip preventing, rug, carpet, 92
Soap, amine, 90, 91
Soap, anhydrous, powdered, 364
Soap chips, flaked, 364
Soap, hand powder, 59
Soap solvent combination, 91
Soapless oil shampoo, 158
Soda ash, caustic, light, etc., 365
Soda bicarbonate, 365
Soda lye, 365
Soda tallow-soap, powdered, 365
Sodium alginate, technical, 365
Sodium alkyl aryl sulfonate, 365
Sodium aluminum silicofluoride, 365
Sodium benzoate, 365
Sodium bisulfite, 366
Sodium carbonate, anhydrous, soda ash, 366
Sodium carboxymethyl cellulose, 366
Sodium chloride, 366
Sodium fluoride, 366
Sodium glutamide, 366
Sodium glycocholate, taurocholate, 366
Sodium hydroxide, 366
Sodium hyposulfite, 367
Sodium lactate, 367
Sodium lauryl sulfate, 367
Sodium lauryl sulfoacetate, 367
Sodium metasilicate, technical, etc., 367
Sodium perborate, 367
Sodium perborate, preparations containing, 315
Sodium phosphate, 368
Sodium sesquicarbonate, 368
Sodium silicate, water glass, 368
Sodium sulfate, technical, anhydrous, 368
Sodium tallow soap, 368

- Sodium tetraphosphate, 368
 Sodium tripolyphosphate, 369
 Solution, antiseptic, astringent, 250, 251
 Solution, mothproofing, for woollens, 68
 Solvent emulsion, degreasing, sheepskins, 302
 Solvent paste for grease, dirt, etc., 60
 Sorbo, 369
 Sources of supply, 321
 Span 60, 369
 Spavin treatment, 269
 Spermaceti wax, 369
 Spices, all types, 369
 Spot and stain remover, 48
 Spray, antiseptic-deodorant, disinfectant, disinfectant-germicide, insecticide, 65
 Spray, hospital, household, etc., 229
 Spray, mosquito-control, 296
 Spray, nylon, longer-wear, 69
 Sprayers, 369
 Stain remover, lipstick, 150
 Stainless steel, copper, brass cleaner, 71
 Starch, corn, wheat, etc., 369
 Starch, liquid compound, 58
 Starter developer chick food, 273, 274
 Stearacol, 369
 Stearic acid, 369
 Stearocinol, 370
 Stick, aftershave, 127
 Stick cologne, 126, 127
 Stick deodorant, 126
 Stock tonic, conditioner, powder, 265
 Stoddard solvent, 370
 Stove polish, liquid, noninflammable, 99
 Straightener, kink, 139
 Strawberry oil, artificial, 293
 Strychnine, 327
 Suds booster, Nacconal NR, 370
 Sudsing detergent powder, 52, 55
 Suet fat, tallow, 370
 Sulfated coconut oil monoglyceride sodium salt, 370
 Sulfathiazole, 370
 Sulfo Turk A, 370
 Sulfonated castor oil, 371
 Sulfur flowers, 371
 Sunburn aftershave lotion, 147
 Suntan, insect-repellent lotion, 143
 Sweeping compounds, 298, 299
 Syrup, fig, laxative compound, 207
 Syrup, laxative compound, 205, 208, 209
 Syrup, laxative fruit compound, 207
 Syrup, orange, lemon, etc., 371
 Syrup, worm, chocolate-flavored laxative, 213, 214
- ### T
- Table of quantity of oils for flavors, 27, 30
 Tablet makers, 371
 Tablets, acid dyspepsia, 203
 Tablets, analgesic, 163, 164, 166
 Tablets, analgesic, alkalizing, effervescent, 164, 165
 Tablets, analgesic, laxative, 166
 Tablets, bile salts compound, 200
 Tablets, compound laxative, 209
 Tablets, compound, mild regulator, 200
 Tablets, compound, pepsin and papain, 201
 Talc, 371
 Talcum powder, borated, scented, 161
 Tallow, edible, 371

- Tamarinds, anchovies, etc., 371
Tannic acid, 372
Tar oil, 372
Tar remover, 299, 303
Tartaric acid, 372
Tergitol wetting agent 7, 08, etc., 372
Terpineol, 372
Tescol, 372
Tetralin, hexalin, etc., 372
Tetrasodium pyrophosphate, technical, granular, 372
Textile machinery cleaning emulsion, 303
Thermometers, industrial, laboratory, etc., 372
Thiamine chloride, vitamin B₁, 373
Throat gargle, 249
Thyme oil, 373
Thymol iodides, iodoform, 373
Thymol, menthol, eucaliptol, camphor, etc., 373
Tincture green soap, 373
Titanium dioxide, oxide, etc., 373
Tonic beverage, chocolate-flavored, 182
Tonic, cod-liver oil, 171
Tonic compound, 177
Tonic compound capsules, 184
Tonic compound, general, vitamin B₁, 175
Tonic compound tablets, 182-184
Tonic, conditioner powder, stock, 265
Tonic, female, 179
Tonic, gaduol stimulant, 171
Tonic, hog, worm expeller, 263
Tonic, horse, 264
Tonic nutrient, 178
Tonic nutritive, growth stimulant, 170
Tonic, poultry, 266
Tonic, restorative, 173
Tonic, vitamin B₁ compound, 174
Tonic, wine compound, 176
Tooth paste, ammoniated, 159
Tooth powder, soluble, 160
Toothache jelly, 256
Tricalcium phosphate, 373
Trichlorethylene, 374
Tricresyl phosphate, 374
Triethanolamine and pile oil, 374
Triethanolamine oleate, stearate, etc., 374
Trigamine stearate, 374
Trihydroxyethylamine stearate, special, 374
Tripoli, bentonite, abrasives, 374
Trisodium phosphate dodecahydrate, 375
Triton X-100, 375
Tubes, ointment, 375
Turpentine, spirits, gum, etc., 375
Turtle oil, 375
Tween 20, 60, 80, etc., 375
Tyrothricin, bacitracin, 375
- U**
- Udder liniment, veterinary, 260
Udder ointment, veterinary, 259
Ultrasine, deo base, deodorized kerosene, 375
Ultrawet, 375
Urea, 376
Used, rebuilt, mixing, sifting machines, 376
- V**
- Vanilla bean extract, true, 36
Vanilla beans, micronized, powdered, etc., 376
Vanilla compound flavoring extract, 37
Vanilla extract from beans, pure, 36, 38
Vanilla flavor, imitation, 35

- Vanilla flavor, nonalcoholic, artificial, 36
 Vanilla flavor, true, nonalcoholic, 37
 Vanilla fruit blend flavoring extract, 32, 33
 Vanillin flavoring, modified, 37
 Vanillin, vanilla powder, fine crystals, etc., 376
 Vegetable oils, cotton, soybean, etc., 376
 Venetian blind cleaner, 94
 Veterinary absorbant application, 270
 Veterinary antiseptic blood-clotting powder, 268
 Veterinary antiseptic, disinfectant, germicide, 271
 Veterinary antiseptic healing-oil compound, 271
 Veterinary cattle tonic, 265
 Veterinary chick food, starter, developer, 273, 274
 Veterinary colic remedy, 266
 Veterinary cough, cold capsules, 269
 Veterinary cow tonic, 263
 Veterinary fever and distemper remedy, 267
 Veterinary flea powder for dogs and cats, 275
 Veterinary fly preventative for horses and cattle, 273
 Veterinary healing oil, antiseptic compound, 231, 271
 Veterinary healing powder, 236, 268
 Veterinary healing skin ointment, 218, 269
 Veterinary heave, 273
 Veterinary hog tonic, worm expeller, 263
 Veterinary hoof oil, 272
 Veterinary hoof ointment, 272
 Veterinary horse tonic, 264
 Veterinary intestinal astringent powder, 261
 Veterinary laxative tonic powder, 266
 Veterinary liniment, 244, 270
 Veterinary mastitis ointment for cows, 261
 Veterinary poultry lice killer, 274
 Veterinary poultry tonic, 266
 Veterinary remedies, 259
 Veterinary scours powder, 262
 Veterinary sheep dip, 273
 Veterinary skin ointment, 270
 Veterinary spavin treatment, 269
 Veterinary stock tonic, conditioner powder, 265
 Veterinary supplementary formulas, 275
 Veterinary udder liniment, 260
 Veterinary udder ointment, 259
 Veterinary worm expeller and hog tonic, 263
 Veterinary worm powder, 272
 Virifoam A, 376
 Vitamin complex elixir, 167
 Vitamin compound, chocolate-flavored, 181
 Vitamin emulsion, orange-flavored, 180
 Vitamin iron liver elixir, 167
 Vitamin liquid concentrate, 168
 Vitamin B complex syrup, 178
 Vitamin B₁ glycerophosphates compound, 169
 Vitamin B₁ herb, compound, 173
 Vitamin B₁ iron peptonate compound, 177
 Vitamin B₁ sherry wine compound, 168
 Vitamins A and D, all forms, 376

Volcanic ash, 377

W

Wafers, laxative, 210

Walnut flavor, artificial, 35

Warning statements, F.D.A., 314

Washing compound, cake and paste form, 52, 53

Washing compound, dish and glass, 57

Washing powder, cleaning, scouring, 54

Waterproofing, cement paint, 301

Water-soluble green dye, 377

Wave hair fluid, stringy, 134

Wave lotion, permanent, 134, 139

Wave lotion, permanent, oily, 138

Wave set, hair, 139

Wax, automobile liquid, 82

Wax burnishing polish, shoe-makers', 98

Wax, carnauba, high-gloss polish, 90

Wax emulsion, furniture cleaner, polish, 86

Wax, glass, metal cleaner, polish, 92

Wax, laundry, self-emulsifying, 58

Wax, liquid, floor dressing, 84

Wax, liquid, floor, self-polishing type, 85

Wax, no rub for floors, linoleum, etc., 83

Wax polishes, 74-76

Wax polishes, automobile, 75, 76

Wax polishes, liquid cream, 75

Wax polishes, paste, 75

Waxes, beeswax, carnauba, ceresin, paraffin, etc., 377

Weed killer, 295

White mineral oil, 377

Window and glass cleaner, 93

Wine beef, compound extract, 179

Witch hazel distilled extract, 377

Woolens, cleaning emulsions for, 303

Worm expeller, hog tonic, 263

Worm powder, veterinary, 272

Worm syrup, chocolate-flavored, 213, 263

Worm syrup, laxative, 214

X

Xylene, Xylol, 377

Y

Yeast, brewer's powder, 377

Yellow ceresine wax, 377

Z

Zinc chloride, 378

Zinc oxide powder, 378

Zinc stearate, 378



